The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 118, No. 16 — COPYRIGHT, 1942, BY AMERICAN MEDICAL ASSOCIATION — CHICAGO, ILLINOIS — APRIL 18, 1942

THE MENOPAUSAL SYNDROME

TREATMENT WITH THE IMPLANTATION OF CRYSTALLINE ESTRONE PELLETS

HENRY G. BENNETT Jr., M.D.
AND
RICHARD W. Te LINDE, M.D.
BALTIMORE

The principle of estrogen replacement therapy in the management of the menopausal syndrome is well established as sound. Estrogen preparations of proved potency have become available during the past decade, and many satisfactory therapeutic results have been reported. The standard method of administration of these estrogen preparations, however, is far from satisfactory as it requires frequent hypodermic or intramuscular injections of the hormone preparations, usually in oil solutions, repeated as often as two to three times each week. Obviously, if it was possible to supply a patient's estrogen requirement for weeks or even months with a single injection, the ideal method of replacement therapy would be more nearly attained.

An approach toward such an ideal method came to hand in 1937 when Deanesly and Parkes [1] announced a new technic in hormone administration whereby solid pellets of crystalline hormone were implanted subcutaneously to be absorbed slowly over a long period of time. Such pellets they found effective in producing prolonged hormonal stimulation in laboratory animals. A year later Bishop [2] treated a young human castrate with a similar subcutaneous pellet of estrone and reported partial relief of menopausal symptoms for five weeks.

Following these promising introductory reports it seemed worth while to subject this new method to extensive clinical trial. Therefore in the fall of 1938 such a study was begun in the gynecologic dispensary of the Johns Hopkins Hospital and a preliminary report of the results in 21 menopausal patients treated with subcutaneous theelin (estrone) pellets was made.[3] In this series of patients it was found that, after the implantation of theelin (estrone) pellets, relief of subjective symptoms began within two weeks and persisted as long as fourteen and a half weeks. Objectively it was demonstrated that the urinary estrogen level rose and remained elevated for correspondingly long periods, that the urinary level of gonadotropic hormone was depressed in 60 to 70 per cent of the cases and that prolonged stimulation of the vaginal mucosa occurred as observed in biopsy specimens. These objective findings were interpreted to show beyond doubt that the theelin (estrone) was absorbed constantly from the implanted pellets for long periods of time and that the estrogenic properties of the absorbed theelin were not impaired by the pellet method of administration.

Other investigators have since reported the effects of various estrogens administered by the pellet method. MacBryde, Freedman, Loeffel and Allen [4] treated 6 surgical castrates with 100 mg. diethylstilbestrol pellets implanted into a small incision in the lumbar region. Vaginal smears showed complete estrous change in seven to ten days. Endometrial biopsies showed "active proliferation" as early as seven days after implantation. Subjective improvement occurred in all cases and persisted as long as the pellets were in place, but symptoms recurred in two to three weeks after the pellets were removed.

Twombly and Millen [5] used 20 mg. pellets of estradiol implanted through a 10 gage needle. Each of the 43 menopausal patients treated received a total of one to three pellets given at intervals of one month. All except 1 of these women showed "moderate to marked improvement or complete cessation of symptoms," and the improvement continued for five to six months. Objective evidence of prolonged estrogen stimulation was demonstrated in endometrial biopsies and vaginal smears.

More recently Mishell [6] reported his experience with 45 to 65 mg. pellets of crystalline estrogens obtained by extraction of pregnant mare's urine. One pellet was implanted in each case through a small incision just above Poupart's ligament. In a series of 19 menopausal women thus treated, all except 1 were relieved of hot flushes for periods of three to five months.

In connection with the pellet method of estrogen administration, mention should be made of a variation of this technic used by Salmon, Walter and Geist.[7] They implanted loose crystals of α-estradiol benzoate through a skin incision 1 inch in length. Doses of 4 to 7 mg. were used. Clinical relief of menopausal symptoms in 10 patients and estrous changes in the vaginal smear persisting for sixty to ninety-eight days were reported. Later the same authors reported a

From the Department of Gynecology, Johns Hopkins University School of Medicine.

This study was made possible by a grant from the Rockefeller Foundation Fluid Research Fund.

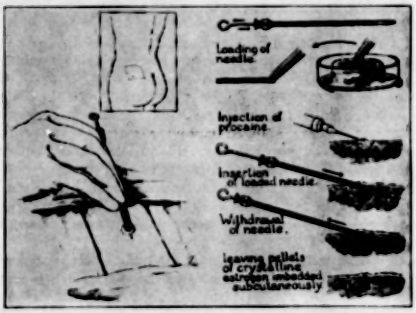
1. Deanesly, R., and Parkes, A. S.: Proc. Roy. Soc. London, s. B **124**: 279 (Dec. 7) 1937.
2. Bishop, P. M. F.: Brit. M. J. **1**: 939 (April 30) 1938.
3. Bennett, H. G., Jr.; Bishkind, G. A., and Mark, J.: Am. J. Obst. & Gynec. **39**: 504 (March) 1940.
4. MacBryde, C. M.; Freedman, Harold; Loeffel, Ellen, and Allen, Duff: Proc. Soc. Exper. Biol. & Med. **43**: 212 (Jan.) 1940.
5. Twombly, C. H., and Millen, R. S.: Surg., Gynec. & Obst. **72**: 605 (March) 1941.
6. Mishell, D. R.: Am. J. Obst. & Gynec. **41**: 1009 (June) 1941.
7. Salmon, U. J.; Walter, R. I., and Geist, S. H.: Science **90**: 162 (Aug. 18) 1939.

series of 7 cases treated with the same technic but with larger doses varying from 25 to 50 mg. of crystalline α-estradiol or α-estradiol benzoate.[8]

The present study is concerned with the treatment of 45 menopausal patients in whom we have implanted theelin (estrone [9]) pellets subcutaneously. Preliminary observations in 21 of these cases have been previously reported.[8]

TECHNIC

As described earlier,[8] our pellets are made by direct compression of pure crystalline estrogen in drilled, machine ground, steel plates. The pellets used are 1.83 mm. in diameter, 2 to 5 mm. in length and 5 to 10 mg. in weight. The estrogen pellets are sterilized in a dry steam autoclave at 250 F. under 15 pounds of pressure for thirty minutes. Implantations in our patients are made through a 12 gage hollow needle fitted with a stilet. The pellets are loaded into the pointed end of the needle with small forceps and the needle is passed through the skin over the gluteal region after procaine infiltration. Pressure on the stilet as



Technic of implantation.

the needle is withdrawn deposits the pellets in the subcutaneous tissues, as shown in the illustration. Sterile technic is, of course, observed throughout the implantation procedure.

DOSAGE

The number of implantations per patient has varied from one to five, the average number being one and one half. The average number of pellets per implantation has been eight; the average total weight of estrogen in each implantation was 40 mg. In some of the early cases considerably smaller doses were used, but during the past year a standard dose of 50 mg. has been used almost routinely. This usually requires six to eight of our tablets.

CLINICAL RESULTS WITH THEELIN (ESTRONE) PELLETS

In evaluating our results we have, as most other investigators, considered the relief of hot flushes to be the most definite criterion. Table 1 shows our clinical results with pellet implantation of crystalline theelin (estrone) pellets, and a comparison is made between this method of therapy and others with which we have had experience. Of the 45 patients treated with theelin (estrone) pellets, 93.4 per cent considered the results satisfactory. In many of these patients hot flushes disappeared completely, though it is not to be inferred that such was invariably the case. However, in all these cases classed as satisfactory the flushes had decreased to the point at which the treatment was considered by the patient to be highly satisfactory. In most instances the improvement of flushes went hand in hand with an improvement in the patient's sense of well being. Improvement usually began within two weeks following implantation. The great advantage of the pellet method of administration of estrogenic hormone lies in the prolonged duration of the relief of symptoms. Our patients were relieved for an average period of sixteen and two-tenths weeks. The shortest term of relief following one implantation was three weeks and the longest sixty-five. It is probable that the latter patient spontaneously recovered from the menopausal syndrome while under estrogen therapy. None of those who had been previously treated with estrogens administered by hypodermic injections showed less improvement from pellets, and in most cases the degree of relief was definitely greater with pellet implantation.

The use of theelin (estrone) pellets has been remarkably free from unpleasant side effects. At the outset we felt that the introduction of such foreign bodies as our pellets would in certain cases give rise to tenderness, pain or other evidence of local inflammation. Our observations now extend over a period of nearly three years, and in no case has such a reaction been observed in our patients. With theelin pellets we have seen no instance of nausea, vomiting or other evidence of systemic, toxic reaction. In no instance has there been objective evidence of breast hypertrophy, chronic cystic mastitis or subjective complaints suggesting such changes. In 1 case, however, abnormal uterine bleeding did occur, consisting of scanty bleeding for one day appearing three weeks after pellet implantation. It is interesting to note that this particular patient had previously been subjected to roentgen ray castration because of prolonged functional bleeding.

COMPARISON WITH OTHER METHODS OF THERAPY

In order the better to evaluate the apparent advantages of the theelin (estrone) pellet method of therapy in the menopause we have thought it necessary to present for comparison our results with other therapeutic methods. As shown in table 1, we have treated 145 menopausal women with diethylstilbestrol administered orally. Of 74 patients taking a daily dose of 0.5 mg. or less, only 60.8 per cent were satisfactorily improved. That a larger dosage is more effective is demonstrated in the group of 71 patients, receiving 1 mg. or more of diethylstilbestrol a day, of whom 85.9 per cent showed satisfactory improvement. The greatest apparent success with diethylstilbestrol occurred in the group of 12 patients who received subcutaneous pellets in an average total dose of 53.5 mg. In all these patients the clinical results, with regard to hot flushes, were satisfactory. Thus it is seen that small doses of diethylstilbestrol given by mouth cannot be relied on as adequate but that in oral doses of 1 mg. or more a day or when given as subcutaneous pellets in average doses of 53.3 mg. diethylstilbestrol is reasonably efficient as compared with theelin pellets as far as the clinical relief of symptoms is concerned.

8. Salmon, U. J.; Geist, S. H., and Walter, R. I.: Proc. Soc. Exper. Biol. & Med. 48: 424 (Feb.) 1940.
9. The crystalline estrogen used in this study was supplied as "Theelin" by Parke, Davis & Co. and as "Estrone" by Eli Lilly & Co.

However, when the undesirable side effects are considered, diethylstilbestrol suffers in comparison. When given in oral dosage adequate to insure satisfactory clinical results, diethylstilbestrol induced nausea in 15.5 per cent of the patients. Of those who received diethylstilbestrol pellets nausea, beginning within twenty-four hours after implantation and persisting for seven to ten days, occurred in 16⅔ per cent. It is of interest to note that vomiting did not occur in these cases and that the nausea disappeared after seven to ten days in spite of the fact that the pellets were not removed. In addition to these toxic systemic reactions it is startling to find that abnormal uterine bleeding occurred in 36.3 per cent of women with intact uteri receiving 1 mg. or more a day orally. Of the 12 patients treated with diethylstilbestrol pellets 5 had undergone hysterectomy. In the 7 women with intact uteri abnormal bleeding occurred in 5. Even in cases treated with diethylstilbestrol orally in doses too small to insure clinical improvement the incidence of nausea and abnormal uterine bleeding exceeded that found with theelin pellets.

TABLE 1.—*Subjective Improvement*

Treatment	Cases	Satisfactory: Completely	Satisfactory: Partially	Unsatisfactory	Per Cent Satisfactory	Per Cent Unsatisfactory
Theelin (estrone) pellets (average 59.4 mg. per patient)	45	34	8	3	93.4	6.6
Diethylstilbestrol pellets (average 53.5 mg. per patient)	12	11	1	0	100.0	0.0
Theelin (estrone) crystals in aqueous suspension (5-25 mg. hypodermically)	27	6	10	11	59.3	40.7
Oral diethylstilbestrol (0.5 mg. or less daily)	74	22	22	29	60.8	39.2
Oral diethylstilbestrol (1.0 mg. or more daily)	71	40	21	10	85.9	14.1
Oral naturally occurring estrogens* (3,000 international units daily)	13	3	3	7	46.0	54.0
Phenobarbital	24	4	8	12	50.0	50.0

* Reed and Carnrick, "Estrogenic Hormone."

In fairness, however, it should be acknowledged that diethylstilbestrol is of the first importance in the investigative phase of menopausal therapy today. Its chief advantages are that it can be effectively administered orally and that it will probably be inexpensive. Since the discovery of diethylstilbestrol by Dodds and his co-workers [10] in 1938 numerous clinical and laboratory studies have proved its high estrogenic potency, even when administered orally. Several investigators have reported it satisfactory in the treatment of menopausal patients. Because of the wide range of dosage employed, varying from 0.1 to 5.0 mg. even in a single study, and because of a lack of agreement as to the frequency of toxic reactions, additional data are needed before the true clinical value of this preparation can be determined.

Another group of patients were treated with theelin crystals in aqueous suspension [11] administered hypodermically in total doses of 5 to 25 mg. given in single injections of 5 to 10 mg. Satisfactory clinical results were obtained in only 59.3 per cent of 27 patients. A small group of 13 cases were treated with natural estrogen [12] administered in the form of an oral tablet three times a day. The results were considered satisfactory in only 46 per cent.

Finally a group of 24 patients were treated with phenobarbital in doses of ¼ and ½ grain (0.016 and 0.032 Gm.) three times daily. Just half of these reported satisfactory results. It should be pointed out that the percentage of completely satisfactory results obtained with phenobarbital was quite low. Although sedatives have been justly replaced in a large measure by hormones in the treatment of menopausal symptoms, our results indicate that sedatives such as phenobarbital do give some relief in a goodly percentage of the cases and may be very useful in those cases which do not respond to endocrine therapy.

TABLE 2.—*Relation Between Duration of Symptoms Before Treatment and Clinical Improvement After Treatment*

(Patients Treated with Theelin [Estrone] Pellets) Duration of Symptoms	Cases	Satisfactory: Completely	Satisfactory: Partially	Unsatisfactory
Less than one year	20	95.0%	.....	5.0%
More than one year	25	60.0%	32.0%	8.0%

It has been our impression in dealing with menopausal women that those who are in what might be termed the acute phase of the menopause respond to treatment better than those who have complained of flushes and other symptoms for one, two or more years. One occasionally sees women complaining of flushes ten or more years after their last period. In addition to the flushes, such women often have developed a multiplicity of vague complaints. It appears that many of these patients have found their menopausal symptoms, which at first were real, a convenient expression of their neurotic natures. With the idea of determining whether this admittedly preconceived idea was correct, we divided the women into two groups, those whose symptoms had been present for less than a year and those in whom symptoms had been present for over a year. Table 2 shows the results. It is obvious from this table that the results in both groups were considered satisfactory in over 90 per cent but that 95 per cent of the patients who had had symptoms for less than one year acknowledged that the implantation had completely relieved them. On the other hand, of those who had complained for over a year, only 60 per cent admitted complete relief. We are inclined to interpret this as indicating that a certain amount of chronic invalidism had developed in many patients of the latter group which naturally could not be cured by endocrine therapy. This suggests to us the desirability of prompt treatment when menopausal symptoms develop before the woman becomes too firmly established as a hypochondriac.

TABLE 3.—*Relation Between Type of Menopause and Clinical Improvement After Treatment*

(Theelin [Estrone] Pellets) Type of Menopause	Cases	Satisfactory: Completely	Satisfactory: Partially	Unsatisfactory
Physiologic	26	73.1%	15.4%	11.5%
Surgical castration	14	85.7%	14.3%	.....
Irradiation castration	5	60.0%	40.0%	.....

10. Dodds, E. C.; Goldberg, L.; Lawson, W., and Robinson, R.: Nature, London **141**: 247 (Feb. 5) 1938.

11. The theelin crystals in aqueous suspension were supplied as "Theelin" by Parke, Davis & Co. and as "Estrone" by the Abbott Laboratories.

12. The natural estrogen was supplied as "Estrogenic Hormone, Oral," by the Reed Carnrick Company.

We felt that it might be of interest to determine which type of menopause responded best to pellet implantation of estrone. Accordingly we divided the cases into three groups, the physiologic, the surgical and the irradiated group. Our results are shown in table 3. There were only 5 cases in the last group, and the figures are probably of little significance. Suffice it to say that all of the irradiated group obtained relief but that in 2 of the 5 the relief was only partial. The surgical castrates responded better than either of the other two groups. We are inclined to feel that the reason for this is that most of these patients were castrated in our clinic and were still in close touch with the clinic when their symptoms developed. Hence they were brought under treatment earlier, which we believe is an important factor in the success of treating menopausal women.

The question of the value of the vaginal smear in determining indications for and the results of treatment should be considered in view of the report of Papanicolaou and Shorr.[13] These investigators lay great stress on the vaginal smear as a means of determining whether symptoms are truly menopausal or psychic in origin. They state that "the menopausal type of smear

TABLE 4.—*Abnormal Bleeding in Patients with Intact Uteri*

Treatment	Cases	Scanty	Profuse	Abnormal Bleeding
Theelin pellets (estrone)	28	1	0	3.5%
Diethylstilbestrol pellets	7	2	3	71.5%
Theelin crystals in aqueous suspension	14	1	1	14.3%
Oral diethylstilbestrol (0.5 mg. or less daily)	45	3	1	8.8%
Oral diethylstilbestrol (1.0 mg. or more daily)	44	6	10	36.3%
Natural estrogens (oral)	10	0	0	0.0%
Phenobarbital	16	0	1	6.3%

is invariably present after the menopause whether or not symptoms exist. In the latter instance it acquires special significance in that it furnishes an objective index of the symptomatic state." We cannot agree with this completely, for we have seen vaginal smears from untreated castrated women showing an abundance of pure large flat epithelial cells such as one usually finds in younger women with an abundance of estrogen. Of special interest was one woman of 30 who had been surgically castrated three years before. She was having typical severe hot flushes but her vaginal smear showed none of the characteristics of the so-called castrate smear. In general, however, it is true that most symptomatic menopausal women have smears suggesting estrogen deficiency and under the influence of the implanted estrone the smears become of the estrogenic type, but we have frequently noted relief from symptoms without any change in the vaginal smear. Frequently symptomatic relief preceded any change in the vaginal smear and we are inclined to believe that the dosage necessary to relieve the symptoms in many women is less than is required to alter the vaginal epithelium. We do not feel that it is necessary for the practitioner who is treating menopausal symptoms to follow the vaginal smears. In fact, to be guided entirely by the smears would in some instances be misleading. It is a better rule to be guided by relief of symptoms.

13. Papanicolaou, G. N., and Shorr, Ephraim: Am. J. Obst. & Gynec. 31:806 (May) 1936.

UTERINE BLEEDING

The production of uterine bleeding in postmenopausal women has frequently been noted by several investigators in the field of estrogenic therapy; hence we are interested in the effect of the implanted pellets of estrone as regards bleeding in the women with intact uteri. Table 4 gives our results. It might be well to define "abnormal bleeding" as recorded in this table. We have considered abnormal bleeding to be intermenstrual bleeding or excessive menstrual bleeding in those patients who were still having their periods. In women who had ceased menstruating for one year or more, any show of blood was considered abnormal. There were 28 cases in the group treated with estrone pellets in which the uteri were intact. Of these, only 1 bled scantily. One wonders whether this bleeding was coincidental or caused by the hormone. As a control, one might consider the 16 cases treated only with phenobarbital. One of these women also bled. This bleeding was certainly coincidental to the treatment but it illustrates the well known likelihood of menopausal bleeding to occur spontaneously. Hence it would seem fair to judge from the results that there is no evidence that the estrone pellets were responsible for bleeding in this group. Twombly and Millen,[8] on the other hand, found that out of 12 patients treated with pellets of α-estradiol 9 bled. From this they justly concluded that the pellet treatment with α-estradiol is contraindicated in women with intact uteri. No such contraindication would seem to exist when pellets of estrone are used. In a small group of 7 patients with intact uteri treated with diethylstilbestrol pellets, 5 bled. Although this is a very small series, the incidence of bleeding is so great that it would seem to indicate that the use of pellets of diethylstilbestrol is definitely contraindicated in women with intact uteri. The table indicates also that when diethylstilbestrol is administered by mouth in sufficient dosage to make relief of symptoms reasonably sure (1 mg. or more a day) bleeding occurred in 36.3 per cent. Estrone crystals were given in aqueous solution in 14 cases. In 2 there followed abnormal bleeding, whereas in the small group of 10 to whom naturally occurring estrogens were administered by mouth, none bled. It is noteworthy that the therapeutic results in this small group were not very satisfactory.

The importance of using an estrogen which does not cause bleeding at or after the menopause cannot be too strongly stressed, for when the bleeding occurs one cannot be certain whether it is due to the endocrine treatment or is dependent on some serious lesion such as corpus carcinoma and the decision can be made only by curettage. Obviously a preparation which will not cause bleeding is of much advantage, and estrone administered by pellet implantation would seem to fit this category.

In searching for an explanation of the frequent bleeding with diethylstilbestrol, we have called on our experience in treating children for gonococcic vaginitis. It would seem that diethylstilbestrol is more potent in its hormonal action as regards growth stimulation than the natural hormone. For instance, we frequently noted excessive uterine growth when the children were treated with diethylstilbestrol, and this was never noted when the natural hormone was used in comparable dosage by weight, even though the local action of the natural estrogen on the vaginal mucosa was just as effective. The bleeding so frequently noted when dieth-

ylstilbestrol is used for menopausal symptoms would seem to depend on this same growth stimulating action on the uterus, for when these bleeding uteri are curetted we usually see evidence of endometrial proliferation in the production of the Swiss cheese glandular pattern and frequent mitoses in the glandular epithelium.

Since the question of the carcinogenic action of estrogenic substance has been raised, it might be in order to consider the possibility of such action when estrogenic pellets are implanted. As already stated, evidence of benign endometrial proliferation was frequently noted when diethylstilbestrol was used, but we have no histologic evidence of this when pellets of estrone were used. Furthermore, we have no clinical evidence from our series that pellet implantation of either estrone or diethylstilbestrol was responsible for any malignant change. Lipschütz and Vargas [14] produced "fibromas" in the uteri of guinea pigs by repeated injections of estradiol and even more effectively produced "fibromas" when tablets of estradiol were implanted. The tumors so produced were all benign and retrogressed when treatment was discontinued. Nelson [15] also produced uterine fibromas in guinea pigs by injecting large amounts of estrogenic hormones. Perloff and Kurzrok [16] implanted pellets of estradiol benzoate in guinea pigs and produced uterine fibromas, but they were unable to do so when pellets of estrone were used. Our clinical experience with pellet implantation causes us to doubt whether these interesting laboratory observations have any clinical bearing; but, if they do, they would seem to indicate that estrone is the weakest growth stimulator of the various estrogens.

LABORATORY AND OBJECTIVE EVIDENCE OF ESTROGENIC ACTIVITY INDUCED BY PELLET IMPLANTATION OF ESTRONE

When estrogen replacement therapy is adequate, it is possible to demonstrate certain objective evidence of the presence of the replacing estrogen and also evidence of its physiologic activity, as indicated by changes in the genital organs and by the tendency toward decrease of the pituitary gonadotropic hormone. Such evidence is essential in proving the effectiveness of any estrogenic substance and the efficiency of any particular method of estrogen administration. Therefore in a considerable number of our patients we have made periodic determinations of the urinary levels of estrogenic substance and gonadotropic hormone before and during therapy and in certain cases studied vaginal biopsies. Repeated urinary estrogen assays were done in 21 cases. In about three fourths of these cases no estrogen was detected before treatment. In the remaining cases the urinary estrogen excretion in twenty-four hours before treatment was never more than 5 rat units, which in our laboratory represents the lower limit of normal for a menstruating woman. After pellet implantation, however, all cases have shown definite and persistent increase in the urinary estrogen, the average post-treatment level being 10 rat units in twenty-four hours. In about one fourth of the cases the level has been above 15 rat units per liter, which in our laboratory is close to the upper limit of normal for menstruating women. The average observed duration of the estrogen increase in the urine has been twenty to twenty-four weeks, but in 1 case the elevation persisted for forty weeks.

Urinary follicle stimulating hormone levels have been followed before and during therapy in 35 instances. In 20 the level before treatment was 25 rat units per liter or more while in 15 cases no elevation was detected. Only 50 per cent of those showing a pretreatment elevation of the follicle stimulating hormone showed a persistent absence of follicle stimulating hormone following pellet implantation. However, in the 10 cases in which suppression did occur it was observed to persist for an average period of twenty-one weeks and in 1 case for forty weeks.

As previously reported, vaginal biopsies in 10 patients showed uniform stimulation of the vaginal mucosa appearing within two weeks and persisting as long as twenty-one and a half weeks after pellet therapy.

CONCLUSIONS

We believe that the pellet implantation of crystalline estrone is the most effective method yet devised of combating the menopausal syndrome, being satisfactory in 93.4 per cent of our cases.

The implantation of pellets as here described is a very simple procedure.

The hormone administered by implantation is effective over a longer period of time than when administered by any other method.

Implanted crystalline estrone pellets produced no untoward side effects in contrast to pellets of diethylstilbestrol (or estradiol reported by others).

The treatment was more completely effective in cases in which the symptoms were present for less than a year, which to us suggests the value of early treatment before the neurasthenic tendencies of the patient are developed. There is, of course, the possibility that the symptoms persist for more than a year only in the more severe cases and hence they are more refractory to treatment.

We do not believe that the vaginal smear is an altogether dependable indicator of the necessity of estrogen treatment in the menopause nor is it of any great clinical value as an indicator of the effectiveness of the treatment of the symptoms. Although we feel that laboratory determinations of urinary estrogenic levels and gonadotropic hormone levels are valuable in evaluating a new therapeutic method, such determinations are not necessary in order to carry out satisfactory therapy in the individual patient.

14. Lipschütz, Alexander, and Vargas, Luis: Lancet 1:1313 (June 10) 1939.
15. Nelson, Warren O.: Endocrinology 24:50 (Jan.) 1939.
16. Perloff, W. H., and Kurzrok, Raphael: Proc. Soc. Exper. Biol. & Med. 46:262 (Feb.) 1941.

The Basis of Civilization.—Science has thus become the basis of civilization and is the primary factor in promoting its growth. Just as earlier society was based on agriculture and local trade, so modern communities are built on the scientific foundation which makes possible rapid transportation and communication, the preservation and distribution of food and adequate sanitation. With only primitive knowledge of metallurgy, mechanics, electricity, chemistry and hygiene, our cities could not exist, and, with them gone, country life also could have only a primitive form. Science has thus proved its practical strength, and the indications are that the future of mankind lies in the hands of those who guide their actions by carefully acquired scientific knowledge. With science and its correlated industries, there is every reason to anticipate a continuation of the rapid growth and development of civilization, except in those regions and periods where political unrest turns men's attention to less scientific matters.—Compton, Arthur H.: Science, Religion and a Stable Society, *Assn. Am. Coll. Bull.* 26:206 (May) 1940.

RENAL COMPLICATIONS FOLLOWING SULFATHIAZOLE THERAPY

TRAVIS WINSOR, M.D.
AND
GEORGE E. BURCH, M.D.
NEW ORLEANS

Since the introduction of the thiazole derivatives of sulfanilamide by Fosbinder and Walter [1] in 1939, renal complications following the use of sulfathiazole have been observed in the experimental animal and to a limited extent in the treated patient. Only 23 instances have appeared in the literature in which sulfathiazole produced apparent renal damage in the human being; in 21 instances there was hematuria, in 7 there was nitrogen retention, and in 2 sulfathiazole was the probable cause of death.

Garvin [2] treated 54 patients for pneumonia, using 10.0 Gm. of sulfathiazole daily, a dose necessary to maintain a blood sulfathiazole level of 5.8 mg. per hundred cubic centimeters. Of these patients 14.8 per cent had gross or microscopic hematuria. One developed renal colic. Abernethy,[3] treating 31 patients with pneumonia, used 40 Gm. of sulfathiazole orally over a period of seven to ten days. One developed hematuria and another showed oliguria and nitrogen retention. Wagoner and Hunting,[4] in the management of 55 patients, administered sufficient sulfathiazole to keep the blood level between 4.0 and 6.0 mg. per hundred cubic centimeters for a period of five days. Only 1 patient developed hematuria. Flippin and his co-workers,[5] in treating 100 patients with 30 Gm. of sulfathiazole in four days, reported 9 instances of microscopic hematuria. In no patient was nitrogen retention or oliguria noted. Culp [6] treated 30 patients having urinary tract infections, using a large initial dose and 1 Gm. of the drug every six hours thereafter for five to ten days. No oliguria or hematuria was noted. Knoll and Cooper [7] used 22 Gm. of sulfathiazole in five days while treating a man aged 81 for pneumonia. The blood sulfathiazole level was 6.7 mg. per hundred cubic centimeters. The patient developed gross hematuria, a blood nonprotein nitrogen of 63 mg. per hundred cubic centimeters and oliguria, all of which returned to normal in four days after discontinuation of the drug. No permanent renal damage was apparent. Horack [8] treated a woman aged 77 for pneumonia. Hematuria and a significant rise in the blood urea nitrogen were observed within eighty hours. Following the withdrawal of the drug there was little improvement of renal function, and the patient died on the ninth hospital day. At necropsy the kidneys were pale and swollen. On sectioning, streaks of gritty material could be seen and felt in the region of the medulla. The tubules were dilated and the pyramids were obstructed by large crystalline masses. Lowenberg, Sloane and Chodoff,[9] however, reported that a woman aged 49 was given 52 Gm. of sulfathiazole in ten days without clinical signs of renal damage. The blood sulfathiazole level ranged between 5 and 7.6 mg. per hundred cubic centimeters. At necropsy the bladder, ureters and tubules were packed with crystals. There was no pathologic evidence of parenchymal damage. In this case the presence of crystals in the urinary tract and even crystals in the tubules themselves did not necessarily mean that damage to the kidneys had taken place. Sulfathiazole may or may not have been a factor contributing to the death of the patient.

Many observations conducted on experimental animals to study the nature of the renal damage from this drug showed lesions to be reproducible and frequently irreversible. Rake, van Dyke and Corwin [10] found that 77 per cent of mice ingesting sulfathiazole to the extent of 2 per cent of their diet died within four weeks. At autopsy, crystals were present in the urinary tract from the proximal convoluted tubules to the urethra. Bowman's capsule was dilated and occasionally filled with blood. The renal tubules also were dilated, were filled with crystals and showed definite peritubular leukocytosis and occasionally tubular necrosis. Half of the animals had definite concretions in the pelves or ureters. The damage to the kidneys seemed to the authors to be of two distinct types: 1. There was mechanical blocking of the urinary passage, producing either obstruction to the renal tubules with a resultant tubular hydronephrosis or obstruction to the ureters with a ureteropelvic hydronephrosis. 2. There seemed to be a primary toxic effect on the glomeruli and tubules directly, as shown by hemorrhage into Bowman's capsule and changes in the glomeruli and glomerular basement membrane.[11]

In rats, in contrast to mice, sulfathiazole is less toxic as far as renal injury is concerned, probably because of the rapid rate of metabolism of sulfathiazole in this animal.[10] Sulfathiazole produced renal calculi rarely in monkeys, owing probably to this animal's normal rapid excretion of the drug.[10] Climenko, McChesney and Messer [12] showed that the continued oral administration of sulfathiazole to dogs produced mild impairment of renal function. These changes were reversible, returning to normal within forty-eight hours following the withdrawal of the drug. Gross, Cooper and Scott [13] clearly demonstrated tubular blockage following sulfathiazole administration in white rats, using frozen sections and polarized light to visualize the crystals.

The mechanism of the renal damage produced by the sulfonamides varies. Wood [14] reported a case in which sulfanilamide was administered, with development of

From the Department of Medicine, Tulane University School of Medicine, and Charity Hospital of Louisiana at New Orleans.

1. Fosbinder, R. J., and Walter, L. A.: Sulfanilamide Derivatives of Heterocyclic Amines, J. Am. Chem. Soc. 61: 2032-2033, 1939.
2. Garvin, C. F.: Renal Complications Due to Sulfathiazole, J. A. M. A. 116: 300-301 (Jan. 25) 1941.
3. Abernethy, T. J.: The Clinical Use of Sulfathiazole in Pneumonia, M. Ann. District of Columbia 9: 159-164 (May) 1940.
4. Wagoner, S. C., and Hunting, W. F.: Sulfathiazole and Sulfapyridine, J. A. M. A. 116: 267-270 (Jan. 25) 1941.
5. Flippin, H. F.; Ross, S. B.; Schwartz, Louis, and Donn, A. H.: Sulfadiazine and Sulfathiazole in the Treatment of Pneumococcic Pneumonia, Am. J. M. Sc. 201: 585-592 (April) 1941.
6. Culp, O. S.: Sulfathiazole Treatment of Urinary Tract Infections, J. Urol. 46: 116-124 (July) 1940.
7. Knoll, A. F., and Cooper, F. B.: Clinical Urolithiasis Medicamentosa Due to Sulfathiazole, Urol. & Cutan. Rev. 44: 292-294 (May) 1940.
8. Horack, H. M.: Crystalline Concretions in the Renal Tubules Following Sulfathiazole Therapy; Widely Patent Foramen Ovale in an Aged Woman, Arch. Path. 30: 645-648 (Aug.) 1940.
9. Lowenberg, S. A.; Sloane, N. G., and Chodoff, Paul: Sulfathiazole Urinary Calculi in the Kidneys, Ureters and Bladder, J. A. M. A. 115: 2069-2071 (Dec. 14) 1940.
10. Rake, Geoffrey; van Dyke, H. B., and Corwin, W. C.: Pathologic Changes Following Prolonged Administration of Sulfathiazole and Sulfapyridine, Am. J. M. Sc. 200: 353-362 (Sept.) 1940.
11. Antopol, William, and Robinson, Harry: Pathologic and Histologic Changes Following Oral Administration of Sulfapyridine, Arch. Path. 29: 67-76 (Jan.) 1940.
12. Climenko, D. R.; McChesney, E. W., and Messer, Frederick: Continued Administration of Sulfathiazole on Renal and Hepatic Function in the Dog, Proc. Soc. Exper. Biol. & Med. 46: 124-128 (Jan.) 1941.
13. Gross, Paul; Cooper, F. B., and Scott, R. E.: Urolithiasis Medicamentosa, Urol. & Cutan. Rev. 44: 205-209 (April) 1940.
14. Wood, Harold: A Fatality from Acute Hemolytic Anemia Which Developed During the Administration of Sulfanilamide, South. M. J. 31: 646-648 (June) 1938.

an acute hemolytic anemia and subsequent death in uremia. At autopsy the convoluted and collecting tubules were packed with pigmented casts, which reacted positively to the iron stain. This type of renal damage is similar to that found in blackwater fever.

Fig. 1 (case 1).—Section of kidney in which there is thickening of the glomerular basement membrane. Adjacent to Bowman's capsule is an area of lymphocytic infiltration.

Sulfathiazole has not produced renal damage in this fashion to our knowledge. Antopol [11] pointed out that changes in the renal parenchyma could take place with or without urolith formation in animals receiving sulfapyridine and that the crystal formation in the tubules may either precede or follow tubular damage. That the drug is irritating in itself is shown by the acute gastritis which follows oral administration and the hemorrhagic reaction in the bowel which follows rectal instillation. Histologic changes were produced with sulfathiazole in the kidneys of the monkey which were similar to those found in man. In many of the animal experiments much larger doses than those used for therapeutic purposes in man were administered.[15]

In view of the relatively few reported instances of renal damage by sulfathiazole in man, the indiscriminate use of the drug by many, and the possibility that most patients who receive the drug are not properly studied for evidences of renal changes, it was considered warranted to report 6 cases from Charity Hospital in which renal injury developed following the administration of sulfathiazole.

REPORT OF CASES

For brevity these cases are condensed, only the data relating to discussions in the paper being presented.

CASE 1.—E. P., a Negro woman aged 37, married, a laundress, entered Charity Hospital on Sept. 19, 1941 complaining of chest pain of five days' duration. She died on September 25.

She presented a typical clinical picture of acute pericarditis and left fibrinous pleuritis with nausea and vomiting of five days' duration and a history of limited intake of fluids and food. The liver was moderately enlarged and soft, and the right kidney was large and movable. There was no ascites or edema. Ten days prior to admission she had a perirectal abscess drained. There was moderate anemia and leukocytosis. The urine had a specific gravity of 1.014, 4 plus albumin and no erythrocytes.

Five hours after her admission on September 19, 3 Gm. of sulfathiazole was administered by mouth. In the following two days she received 6 Gm. of sulfathiazole orally each day. On September 22 she was given three doses of 40 cc. of 5 per cent sulfathiazole intravenously. Each day on which sulfathiazole was given, 2,000 cc. of intravenous fluids was administered in addition to that drunk. On September 22 the drug was stopped because of oliguria and the presence of red cells and sulfathiazole crystals in the urine. In three days she had received a total of 21 Gm. of the drug, 6 Gm. of which was given intravenously. Repeated urine examinations revealed a specific gravity of 1.014, 4 plus albumin and 10 to 15 erythrocytes per high power field. No casts were reported. On September 21 the blood urea nitrogen rose to 101 mg. per hundred cubic centimeters, the blood sulfathiazole was 21 mg. per hundred cubic centimeters and the carbon dioxide combining power was 22 volumes per cent. By September 25 her fluid output was only 5 cc. On this day her temperature rose to 102 F., the pulse rate was 180 per minute, the respiratory rate was 45 per minute and the patient died.

On postmortem examination, the pericardial cavity contained 20 cc. of purulent fluid, and shaggy fibrinous adhesions were present between the visceral and the parietal pericardium. The left pleural space contained 100 cc. of purulent exudate. The kidneys were enlarged, the right weighing 390 Gm. and the left 280 Gm. They were smooth, swollen and pale and showed no hemorrhage or crystals. The pelves and ureters were not dilated. The bladder showed numerous submucosal hemorrhagic areas in the region of the trigone.

On microscopic examination [16] the kidney capsule was thin. The glomeruli were slightly decreased in size, appeared somewhat acellular and showed considerable thickening of the basement membranes. The glomerular spaces were dilated and contained a moderate amount of eosinophilic granular material. A few hyalinized glomeruli were noted in the cortex. The tubules were all dilated, and many contained an eosinophilic granular amorphous material. This was most pronounced in the convoluted tubules, which were lined by a flattened type of epithelium. There was an increase in the interstitial fibrous tissue associated with slight edema. There was a diffuse lymphocytic infiltration throughout the cortex (figs. 1 and 2).

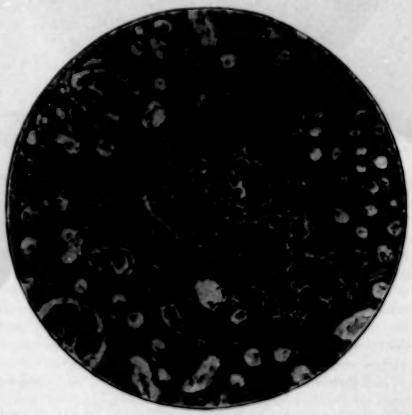


Fig. 2 (case 1).—Section of kidney in which the tubules are dilated. An area of leukocytic infiltration and hemorrhage is seen. The tubular epithelium is flattened. There is some interstitial edema and fibrosis.

15. Sunderman, F. W.; Pepper, D. S., and Benditt, Eleanor: Sulfathiazole in Blood and Urine, Am. J. M. Sc. 200:790-795 (Dec.) 1940.

16. Dr. Joseph Ziskind of the Department of Pathology, Tulane University Medical School, evaluated the microscopic sections.

On the first examination, no mass in the right upper quadrant was found. This was detected only after sulfathiazole was started and gave the examiners the impression that it was a right kidney that had become enlarged and that the sulfathiazole was responsible for this acute enlargement. Because of the acuteness and severity of the patient's illness, sulfathiazole was administered as described without the state of renal function having been previously determined. After having received 18 Gm. of sulfathiazole in three days, she was found to have a blood sulfathiazole level of 21 mg. per hundred cubic centimeters, oliguria (as little as 5 cc. a day) and a retention of nonnitrogenous products. The patient died shortly thereafter. Since no previous renal function studies were made, it is impossible to be certain that there was no antecedent renal damage. The history suggested the absence of any chronic renal disease. It was thought that, even though the sulfathiazole may not have been responsible for the primary renal damage, it probably produced the final oliguria and uremia.

Fig. 3 (case 2).—Section of kidney in which the tubules and Bowman's space are dilated and an eosinophilic granular material is in their lumens. The free borders of the tubular epithelium are frayed and ragged. There is some thickening of the glomerular basement membrane.

At necropsy, no evidence of uremic pericarditis was seen. Frozen sections of the pericardium and myocardium were made, as it was felt that crystal formation in the heart muscle or pericardium itself could be a factor contributing to the pericarditis. No crystals were found. Frozen sections of the kidneys, however, showed the presence of crystals which completely filled and obstructed the renal tubules. Paraffin section of these organs stained with hematoxylin and eosin revealed no crystal formation. The tubules were dilated and showed signs of tubular degeneration and other signs of sulfathiazole damage.[11]

Several facts may be learned from this case: 1. Before giving sulfathiazole, one must be sure that the patient has not already taken the drug without the knowledge of the doctor. The high blood level of sulfathiazole may have been due to use of the drug before admission to the medical wards. If in doubt, a blood sulfathiazole determination should be made before the drug is administered. 2. Renal function tests should be done to learn the state of renal function before sulfathiazole is administered. 3. Sulfathiazole should probably not be given to a patient who is dehydrated or to one with severe renal damage. 4. Fluids should be forced while the drug is being administered, and oliguria, hematuria, a unilateral enlarging kidney or impaired renal function (determined by frequent urinalyses and renal function studies) should be indications to stop the drug. 5. Tissues should be studied by frozen section if crystals are to be found.

Case 2.—A. A., a Negro woman aged 36, married, a housewife, was admitted to Charity Hospital on July 29, 1941 and died on August 2. Two weeks prior to admission to the surgical service an acute right salpingitis developed which had resulted in a pelvic abscess and diffuse peritonitis by the time of admission.

There were leukocytosis, increased sedimentation rate, a trace of albumin and many casts in the urine. An exploratory laparotomy was performed and the diagnosis confirmed.

On return to the ward the patient was given 5 Gm. of sodium sulfathiazole in 1,000 cc. of saline solution by the intravenous route. The following day the same total dose was repeated in divided amounts along with the intravenous administration of fluids. No sodium bicarbonate was administered. On Aug. 1, 1941, a catheterized specimen of urine was grossly bloody. The nonprotein nitrogen was 38 mg. per hundred cubic centimeters and the carbon dioxide combining power was 30 volumes per cent. She developed oliguria, abdominal distention, a temperature of 103 F. and signs of pulmonary edema. The latter was treated by sedation, phlebotomy, tracheal aspiration and 50 per cent dextrose solution intravenously. The patient died. August 2, with acute respiratory distress.

On postmortem examination the peritoneal cavity showed signs of diffuse peritonitis. The kidneys were pale, tense and swollen. The right kidney weighed 200 Gm. and the left 240 Gm. Sectioning produced a gritty sensation. The cut surfaces were pale and felt sandy and rough. The calices and pelves of both kidneys contained pale yellow, gritty crystals, which tended to clump together. The left ureter was dilated and congested, and its lumen contained a plug of crystals which completely blocked the ureter at the trigone of the bladder.

Microscopically the kidneys showed considerable distention of the capsular spaces with small glomerular tufts. Within these spaces there was noted much eosinophilic granular material. There was slight thickening of the basement membrane with no proliferation of the endothelium. The tubules were generally greatly dilated, especially in the cortical area. The cells lining the tubules were flattened and more atrophic than normal. The convoluted tubules showed considerable eosinophilic granular material. This was also found in the collecting tubules, but in minimal quantities. There was very slight interstitial edema. Occasionally small groups of lymphocytes were seen between the convoluted tubules. The capillaries were congested, and an occasional intertubular hemorrhage from these vessels was noted (fig. 3).

The patient showed signs of renal damage after the intravenous administration of 10 Gm. of sodium sulfathiazole in forty-eight hours. The hematuria, oliguria, azotemia and acidosis all pointed to renal involvement. Poor renal excretion may have been due to renal irritation from the massive peritonitis, to shock secondary to the infection as well as to the operation itself, and to dehydration due to fever, vomiting, catharsis and lack of administration of sufficient amounts of fluid. The delayed excretion as well as the intravenous administration of the drug would all tend to produce a high blood sulfathiazole level and a subsequent hyperacetylation of sulfathiazole in the liver and other organs of the body. Sunderman, Pepper and Benditt[18] have shown that the acetyl derivative of sulfathiazole is only one tenth as soluble in urine as is the free form of the

drug and that both are half as soluble in urine of p_H 5.6 as in urine of p_H 7.6. Recently observations by Curtis and Sobin[17] corroborated this. Schwartz, Flippin, Reinhold and Domm,[18] on the other hand, found that alkalization decreased the tendency toward urolith formation but little. Administration of sodium bicarbonate to this patient during sulfathiazole therapy probably would have lessened crystal formation in the kidney and ureteropelvis, especially since she showed a low blood carbon dioxide combining power. Necropsy showed renal damage which was comparable to that described by Antopol.[11] The left hydronephrosis with urolith formation illustrates the mechanical damage to this patient. Although crystals were seen and felt grossly at the autopsy table in these kidneys, routine paraffin sections did not reveal their presence as they were dissolved out while the sections were being prepared. Frozen sections were not made. Sadusk, Waters and Wilson[19] described 2 cases similar to this with calculi blocking the ureterovesicular orifice, with tubular dilatation and vacuolization and congestion of the glomerular tufts following the administration of sulfapyridine.

CASE 3.—C. G., a Negro woman aged 47, married, a housewife, entered Charity Hospital on Sept. 29, 1941 complaining of fever of three weeks' duration. She died on November 2.

On September 5 the patient contracted an infection of the upper respiratory tract which progressively descended, resulting in bronchopneumonia and right and left ventricular congestive heart failure. The physical findings supported the diagnosis.

The blood and urine examinations were normal. There was no gross or microscopic hematuria. Laboratory studies revealed a phenolsulfonphthalein excretion of 70 per cent in one hour, an antecubital venous pressure of 26 cm. of water, a decholin circulation time from arm to tongue of fifty seconds and an ether circulation time from arm to lung of ten seconds.

During the first thirteen days of hospitalization she received 62 Gm. of sulfathiazole by mouth. No sodium bicarbonate was given. On October 13 she complained of bilateral lumbar pain and an inability to urinate for the preceding sixteen hours. Urethral catheterization recovered a few drops of grossly bloody urine which was packed with sulfathiazole crystals. The blood pressure was 150 systolic and 90 diastolic. The blood sulfathiazole was 8 mg. per hundred cubic centimeters. Ureteral catheterization was done immediately, and when the catheters were passed a gritty sensation suggested the presence of numerous sulfathiazole crystals. There was no excretion of indigo carmine from either catheter in twenty minutes. The patient returned to the ward with a blood pressure of 82 systolic and 48 diastolic. In the first forty-eight hours the fluid intake was 8,500 cc. and the output was 780 cc. In the following ten days she received daily 4,000 cc. of fluids, 50 cc. of 50 per cent dextrose solution, 24 Gm. of sodium bicarbonate and 1½ grains (0.1 Gm.) of digitalis. During this time the ureteral catheters were irrigated every two hours with warm isotonic solution of sodium chloride. In the twelve days following her hematuria the erythrocytes and sulfathiazole crystals disappeared from the urine and the blood urea nitrogen rose from 10 to 60 mg. per hundred cubic centimeters. The patient was doing fairly well when she unexpectedly died on November 2, just twenty-one days after the onset of the hematuria.

At autopsy, the right kidney weighed 210 Gm. and the left kidney 200 Gm. The capsules stripped with ease, revealing a fairly smooth purple surface which showed an occasional granular area in the region of the medulla. The cortex measured 0.7 cm. in thickness. The line of demarcation between the cortex and the medulla was distinct. The calices and pelves showed no abnormalities.

Microscopically the kidneys showed occasionally small scars just beneath the capsule, within which were a few atrophic tubules and occasional lymphocytes, plasma cells and large mononuclear cells. The glomeruli varied in size, most of them appearing smaller than normal. There was no proliferation of the endothelial or capsular cells, but the basement membranes were slightly thickened. Here and there the afferent arterioles showed thickening and hyalinization. There was moderate distention generally of the glomerular spaces, which contained in most instances an eosinophilic granular material. Moderate distention of the tubules, especially in the cortex, was noted. Many of the cells lining the convoluted tubules showed fraying of the free borders and albuminous degeneration. These tubules contained within their lumens an eosinophilic, granular amorphous material. Occasionally degenerating cells were noted in the lumens. A similar precipitate was present in the collecting tubules and some of Henle's loops but was not as well defined as in the proximal and distal convoluted tubules. There was

Fig. 4 (case 3).—Section of kidney in which Bowman's space contains an eosinophilic granular material. There is some thickening of the glomerular basement membrane.

not much separation of the tubules by interstitial edema. An occasional small focal area of lymphocytes and polymorphonuclear leukocytes could be seen in the peritubular tissues. This, however, was not constant (fig. 4).

The patient received 62 Gm. of sulfathiazole orally in twelve days, at which time backache heralded the onset of renal complications. Anuria quickly followed. The granular sensation felt while the ureteral catheters were being passed gave evidence of the presence of crystals in the ureters, and examination of the urine revealed typical crystals of acetyl sulfathiazole. If one assumes that the catheters were patulous, the inability of the kidney to excrete urine or indigo carmine through these catheters indicates a damage or block within the kidney itself and not in the extrarenal passages. Peterson and Finland[20] reported a case in which crystals formed in the ureteral catheters during catheterization, causing complete obstruction to the urine outflow. When intrarenal obstruction or damage has taken place, ureteral catheterization and irrigation of the ureters

17. Curtis, A. C., and Sobin, S. S.: The Solubility of Acetylsulfapyridine and Acetylsulfathiazole in the Urine, Ann. Int. Med. 15:884-889 (Nov.) 1941.

18. Schwartz, Louis; Flippin, H. F.; Reinhold, J. G., and Domm, A. H.: The Effect of Alkali on Crystalluria from Sulfathiazole and Sulfadiazine, J. A. M. A. 117:514-515 (Aug. 16) 1941.

19. Sadusk, J. F.; Waters, Levin, and Wilson, Dwight: The Treatment of Anuria Due to Sulfapyridine Calculi, J. A. M. A. 115:1968-1973 (Dec. 7) 1940.

20. Peterson, O. L., and Finland, Maxwell: The Urinary Tract in Sulfonamide Therapy, Am. J. M. Sc. 202:757-759 (Nov.) 1941.

and pelves cannot be expected to relieve the anuric patient. Such a procedure will, however, clear the extrarenal passages and will allow free flow of urine when diuresis begins. Carroll, Shea and Pike [21] have shown that sulfathiazole crystals dissolve best in distilled water at 107 F. Warm distilled water would probably have been superior to the warm physiologic solution of sodium chloride used in this patient. Dourmashkin and Worton [22] stated, in regard to sulfapyridine urolithiasis, that timely ureteral catheterization may be life saving. This is true only if there is little intrarenal obstruction and not when intrarenal blockage is primary. The latter must be treated by forcing fluids, sodium bicarbonate and diuretics.

At necropsy the kidneys of this patient were not pale, swollen or filled with sulfathiazole crystals as were the kidneys of the previous patient, who showed evidence of acute sulfathiazole injury. Instead, these kidneys were those of subacute damage in which injury had been inflicted more than twenty-one days previous to her death. It is possible that during these twenty-one days any crystals that may have been present were dissolved and excreted.

Case 4.—E. B., a Negro woman aged 32, married, a housewife, entered Charity Hospital on Sept. 22, 1941 complaining of a cough of fourteen days' duration. She was discharged on October 22.

On September 8 she noted a dry cough, headache, slight fever and pain in the chest, which were followed by definite clinical evidence of lobar pneumonia.

There were moderate anemia and leukocytosis. The urine had a specific gravity of 1.014, 2 plus albumin and occasional pus cells and erythrocytes.

On September 22 sulfathiazole was started by giving 2 Gm. immediately, 2 Gm. in four hours and 1 Gm. every four hours orally thereafter. No sodium bicarbonate was given. A soft, neutral diet was supplied. On September 25, after receiving 16 Gm. of the drug, she complained of a constant, dull, bilateral backache and an inability to urinate for twelve hours. Twenty cc. of bloody urine loaded with sulfathiazole crystals was obtained by urethral catheterization. The flat plate of the abdomen at this time showed no evidence of radiopaque urinary calculi. Ureteral catheters were passed and a gritty sensation was noted as the catheters were guided into the pelves of the kidneys. Five cc. of bloody, granular urine was drained from each pelvis. The pelves were irrigated with warm isotonic solution of sodium chloride until no more crystals were obtained. Intravenous indigo carmine appeared in weak concentration in both catheters at the end of thirty minutes. The blood urea nitrogen was 28 mg. per hundred cubic centimeters, the carbon dioxide combining power 58 volumes per cent and the blood sulfathiazole 10.7 mg. per hundred cubic centimeters. The patient was treated with 3,500 cc. of fluid daily, an alkaline-ash diet, 40 Gm. of sodium bicarbonate daily and irrigation through the ureteral catheters every two hours for seven days. On September 26 the urine output was only 25 cc. The output during the next four days was 470, 410, 835 and 2,025 cc. respectively. By the time of her discharge on October 20 there were no erythrocytes in the urine. The urea clearance was 100 per cent and the phenolsulfonphthalein excretion 70 per cent in the first hour and 5 per cent in the second. The blood urea nitrogen was 8 mg. per hundred cubic centimeters.

The course in this case resembled that of the previous one in that headache, intrarenal suppression of urine, hematuria, crystalluria and azotemia developed after the oral administration of the drug. In contrast to the previous patient, however, she received only 16 Gm. of the drug in three days. The blood sulfathiazole level was not excessive. Following alkalization, ureteral catheterization and diuresis, recovery took place in five days. The criteria for recovery used in this case was the absence of hematuria, a return to a normal urine output and the existence of normal renal function. The problem of the administration of sulfathiazole to a patient with evidence of a preexisting renal lesion is presented by this patient. Before sulfathiazole was given a routine urine examination showed 2 plus albumin and an occasional erythrocyte. This may have been secondary to her pneumonia, as she had no history or other signs of nephritis. Sadusk, Blake and Seymour [23] stated that persons with heart failure or renal damage retained the drug with a subsequent high blood level and a high degree of acetylation which was probably the result of continuous recirculation through the liver. It would seem then that any condition which would increase the acetylation and hence augment the insolubility of sulfathiazole would be a contraindication to the use of the drug. The renal function was not sufficiently impaired, even if there was previous renal disease, to produce an accumulation of sulfathiazole in the blood, as the blood level was only 10.7 mg. per hundred cubic centimeters. On discharge the patient showed no evidence of impairment of renal function. The urea clearance test, blood urea nitrogen level and phenolsulfonphthalein excretion tests were within normal range. Before catheterization the patient showed negative roentgenograms of the kidney regions. A few moments later, however, a gritty sensation was felt as the ureteral catheters were guided into place. These crystals were not roentgenographically visible. Uroliths of sulfathiazole are invisible unless infiltrated with calcium, in which case they can be seen by x-ray examination. This patient illustrates the success that usually follows treatment of the renal damage.

Case 5.—R. B., a white man aged 54, married, entered Charity Hospital on Sept. 6, 1941 with the complaint of inability to urinate of thirty-six hours' duration. He was discharged on September 24.

Fourteen days previous to entrance he developed a cough, sore throat and general malaise, which was accompanied by painful joints, chills and fever. His symptoms continued for ten days, at which time he received 8 Gm. of sulfathiazole over a period of forty-eight hours. This was unaccompanied by sodium bicarbonate. After the first dose of the drug he became nauseated, and during the course of the treatment he vomited frequently. For two days prior to entrance he noted a gradual diminution of his urinary output, and for the thirty-six hours previous to entry he had passed no urine. At no time had he noted dysuria, hematuria or backache.

Physical examination failed to show any abnormalities except a temperature of 102 F. There were mild anemia and no leukocytosis. The nonprotein nitrogen was 86 mg. per hundred cubic centimeters and the carbon dioxide combining power was 29 volumes per cent. A blood sulfathiazole value was not reported. No urine was obtained by ureteral catheterization. X-ray examination of the kidney showed no evidence of calculi formation.

On September 6 cystoscopy was done and a ureteral catheter was passed into the left kidney pelvis. Two cc. of cloudy urine was obtained, which contained many epithelial cells, no crystals and no red cells. There was no further excretion of

21. Carroll, Grayson; Shea, John, and Pike, George: Complete Anuria Due to Crystalline Concretions Following the Use of Sulfapyridine in Pneumonia, J. A. M. A. 114: 411-412 (Feb. 3) 1940.

22. Dourmashkin, B. L., and Worton, Morris: Anuria Due to Complete Bilateral Ureteral Impaction with Concretions Following the Use of Sulfapyridine in Pneumonia, New York State J. Med. 41: 146-149 (Jan. 15) 1941.

23. Sadusk, J. F.; Blake, F. G., and Seymour, Anne: Observations on the Absorption, Excretion, Diffusion and Acetylation of Sulfathiazole in Man, Yale J. Biol. & Med. 12: 681-696 (July) 1940.

urine in thirty minutes. The catheter could not be passed into the right pelvis. The patient was returned to the ward with the catheter in place. For the following seven days he was given large doses of 50 per cent dextrose, theophylline with ethylenediamine and fluids intravenously, caffeine with sodium benzoate intramuscularly and sodium bicarbonate and digitalis orally. The ureteral catheter was irrigated frequently with warm isotonic solution of sodium chloride. The catheter was removed on September 13, at which time the blood sulfathiazole was 1.0 mg. per hundred cubic centimeters. The blood urea nitrogen was 39 mg. per hundred cubic centimeters and the urine flow adequate. On September 19 the blood urea nitrogen was 22 mg. per hundred cubic centimeters and the phenolsulfonphthalein excretion was 30 per cent in the first hour and 20 per cent in the second hour. On September 24, the day of his discharge, the excretion was 25 per cent and 17 per cent in the first and second hours respectively.

The patient received only 8 Gm. of sulfathiazole in two days, after which he was anuric for thirty-six hours. His blood urea nitrogen was high and he was clinically uremic. Following ureteral catheterization only a few drops of urine could be obtained from the left kidney pelvis. It is remarkable that no erythrocytes or crystals were found in the urine, and at no time was gross or microscopic hematuria seen. An intensive regimen of diuresis was instigated, and the patient was discharged in fifteen days with evidence of moderate renal impairment. In view of the small dosage received, the symptoms might be due to overdosage, idiosyncrasy, sensitivity or hyperacetylation of the drug. In general, symptoms of overdosage are certain, reproducible and reversible; they can be produced in the experimental animal, and the severity of the reactions is dependent upon the dosage of the drug employed.[24] The dose employed in this case is certainly not excessive for the average patient. Symptoms due to idiosyncrasy are uncertain, are variable, have little relation to dosage and have no counterpart in the experimental animal.[24] Symptoms due to sensitivity are characterized by a previous history of contact, a period of incubation and an altered and accelerated response. The patient had not taken sulfathiazole previously. Although it is generally conceded that the sulfonamides produce no allergic antibodies such as precipitins and that the scratch, intradermal and passive transfer tests are generally negative, there are, however, at least a dozen reports in the literature which seem to indicate an allergic reaction to the sulfonamides in persons who have been previously sensitized to these drugs.[25]

CASE 6.—B. G., a Negro aged 35, married, a longshoreman, entered Charity Hospital on Feb. 10, 1941 complaining of cough and chest pain of four days' duration. He was discharged on February 21.

Four days before admission the patient contracted an infection of the upper respiratory tract. On admission his temperature was 100 F. and there were coarse, dry rales in the lungs. The blood and urine were normal.

On February 11, sulfathiazole was started orally without sodium bicarbonate. Nine Gm. of the drug was given in thirty-two hours. The patient became nauseated. A voided urine sample was grossly bloody. Numerous needle shaped crystals were seen microscopically. Fluids were forced and sodium bicarbonate was given. By the seventh day of treatment, no more erythrocytes could be found in the urine. He was discharged on February 21.

This case superficially resembled case 5 in that a small dose of sulfathiazole was administered to a comparatively young person whose urinary findings were normal previous to the administration of the drug. The presenting symptom was hematuria; oliguria did not occur. The urine was loaded with the typical dumbbell shaped rosettes and large orthorhombic and hemimorphic crystals, which are described in detail by Sunderman, Pepper and Benditt.[15] Many patients receiving sulfathiazole have crystals in the urine and yet show no sign of renal damage. Schwartz and his collaborators [18] have shown that of 100 patients receiving sulfathiazole, half having alkaline and half acid urine, 28 per cent of the former and 70 per cent of the latter had crystalluria. The mere presence of crystals in the urine is not an indication to stop the drug. The patient responded to the simplest kind of treatment. Probably only extrarenal irritation, which cleared readily with the withdrawal of the drug, had taken place.

COMMENT

The 6 cases reported illustrate some of the renal problems encountered from the therapeutic use of sulfathiazole. Such renal injury has been noted more for sulfapyridine than for sulfathiazole.[20] This is most probably due to the fact that the latter drug has been used for only a relatively short time. It is too early to evaluate the status of sulfadiazine and sulfaguanidine as far as renal damage is concerned. Sulfanilamide appears to be much less likely to injure the kidneys seriously.[20] These individual differences among the sulfonamides can be explained in part, at least, by their known chemical and pharmacologic behavior. Sulfathiazole is rapidly and irregularly absorbed from the gastrointestinal tract, it produces variable blood levels, acetylation is limited, it is excreted rapidly in the urine, and its reabsorption from the tubules is poor because of its relative insolubility in urine. Sadusk, Blake and Seymour [23] showed that the rate of absorption in a normal adult male following a single oral dose of 4.2 Gm. (0.06 Gm. per kilogram) reached its peak of 9 mg. per hundred cubic centimeters in the blood three hours after ingestion. They also pointed out that the kidneys at autopsy contained more sulfathiazole than did the other organs of the body. In six hours the blood sulfathiazole level had fallen considerably. Forty per cent of the drug was excreted in the urine in six hours, and 70 to 80 per cent was excreted in twenty-four hours. In cases of pneumococcic pneumonia a single dose of 4 Gm. of sulfathiazole raised the blood sulfathiazole level to 4.9 mg. per hundred cubic centimeters within four hours. This ready absorbability of the drug was comparable to that found with sulfanilamide. When 32 patients without either heart disease or nephritis were treated with an initial oral dose of 4 Gm. of sulfathiazole and subsequent doses of 1 Gm. every four hours, the blood sulfathiazole level varied between 2 and 12 mg. per hundred cubic centimeters.[22] This variability of blood sulfathiazole was somewhat less by the tenth day. The rapid absorption of the drug in human beings makes it necessary to start with an initial dose of about 4 Gm. and to administer the drug at intervals of four hours day and night. With its variability of absorption, even in the presence of a normal excretory rate, it is necessary to examine the blood sulfathiazole level at regular intervals in order to control properly the progress of the patient. Carroll,

24. Cutting, W. C., and Cover, W. L.: Summary of Pharmacology of Sulfanilamide and Related Compounds, California & West. Med. 52: 110-113 (March) 1940.
25. Shavin, S. J.: Complications from Sulfanilamide and Its Related Compounds, Tri-State M. J. 12: 2490-2495 (May) 1940.

Kappel and Lewis[26] have stressed the value of blood sulfathiazole levels in controlling the pharmacologic and toxic effects of the drug. They feel that a blood sulfathiazole level of 5.0 mg. per hundred cubic centimeters is both safe and effective. This was demonstrated by a study of 200 benefited patients who showed no hematuria or oliguria. Wagoner and Hunting[4] found sulfathiazole and sulfapyridine equally effective when administered to pneumonia patients for five days, keeping the blood sulfathiazole level between 4 and 6 mg. per hundred cubic centimeters. Rammelkamp and Stoneburner[27] concluded from their experiments in vivo and in vitro that 2 to 4 Gm. of sulfathiazole daily was sufficient to sterilize the urine of patients with mild urinary tract infection. Such a small dose as this may be highly desirable in treating patients with renal infection with a drug which itself may cause renal damage. Culp[6] felt that large doses of sulfathiazole predisposed to renal complications. Carroll, Kappel and Lewis,[26] however, described a case in which 14 Gm. of sulfathiazole was administered daily without harmful effects. Oral doses of approximately 0.06 Gm. per kilogram have been used effectively against types I, II and III pneumococcus, beta Streptococcus hemolyticus group A, gonococcus and Staphylococcus aureus.

Sodium sulfathiazole in contrast to sulfathiazole is poorly absorbed from the gastrointestinal tract and rectum. Strauss, Lowell, Taylor and Finland[28] showed that, when sodium sulfathiazole was administered intravenously, a high blood level was attained as compared with the sodium salts of the other sulfonamides. The drug was excreted rapidly and almost quantitatively. Both sulfathiazole and its sodium salt were reabsorbed poorly by the renal tubules.

The degree of acetylation, which probably takes place to some extent in the liver, would seem to have some bearing on urolith formation for the acetyl form is highly insoluble. Sadusk, Blake and Seymour[23] have shown that the degree of acetylation of sulfathiazole is comparatively slight and variable. It ranges from 0 to 30 per cent, the median being 12 per cent. In patients with congestive heart failure and renal damage the blood sulfathiazole level following average doses may rise to 15.9 mg. per hundred cubic centimeters by the fourth day with a high degree of acetylation. This has been said to be due to the prolonged recirculation of the drug through the liver.

DIAGNOSIS

The diagnosis of renal damage is not difficult, especially if the patient has been properly studied and an inventory of the renal state has been taken before sulfathiazole was administered. The appearance of hematuria, oliguria, backache, tenderness over one or both kidney areas, decreased renal function, azotemia and progressive nephromegaly in a patient who has received sulfathiazole should make one suspect renal damage from the drug. Rarely do all the findings exist at the same time. Cystoscopic study will usually establish the diagnosis. Sulfathiazole crystals in the urine may aid in establishing the diagnosis, but their presence alone does not mean renal damage. X-ray study will usually not reveal uroliths unless there is calcification, which is rare. It should be remembered that renal damage can occur in the presence of a low blood level of sulfathiazole and also after only a small amount of the drug has been administered.

PREVENTION

Because of the tendency of sulfathiazole to injure the kidneys, it is necessary to employ the drug cautiously. On administration of the drug, it is advisable to follow certain rules:

1. Determine whether or not the patient has had any sulfonamide medication before. If the history is not reliable, it is advisable to determine the blood level and prescribe accordingly. This will tend to prevent overdosage and reduce the likelihood of injuring the kidneys.

2. Evaluate the state of the patient's renal function and the nature of the urine being excreted before administering the drug. In the presence of impaired renal function there is a greater chance for overdosage and renal damage. Furthermore, infectious states for which the drug is used will in themselves produce renal changes with casts, erythrocytes and albumin in the urine. It is therefore necessary to know whether or not findings in the urine following the use of sulfathiazole are due to the drug or to previously existing infection. In the presence of serious renal damage proceed carefully with the drug, check the urine frequently and determine the blood sulfathiazole level often. Should hematuria develop or renal function definitely decline, stop the drug immediately. Do not allow the blood levels of the drug to increase above accepted therapeutic values. In some instances it might be well to determine the blood levels of urea nitrogen or total nonprotein nitrogen before giving sulfathiazole to patients who have some evidences of impaired renal function determined by urea clearances, concentration tests and the like. Such determinations will aid in supporting other findings in the future, especially if renal complications are suspected. Palpate for the kidneys before and during the use of the drug. As shown in the first case, the kidneys may become palpable once renal injury has occurred.

3. The hydration of the patient should be evaluated. A severely dehydrated patient will take in a great deal of fluid and excrete but little and therefore will be more likely to experience renal damage. Chart the fluid intake and output and make sure that the urine output is of good volume before and during the use of the drug. Curtis and Sobin[17] have shown that 2,000 cc. of urine output daily are necessary to prevent the formation of acetyl sulfapyridine crystals in acid urine of low specific gravity for a 2 Gm. daily intake and that 6,000 cc. is necessary for a 6 Gm. daily intake. On the other hand, with an alkaline urine 1,250 cc. and 3,750 cc. of urine output daily would be necessary for doses of 2 and 6 Gm. daily intake respectively. Once oliguria develops in spite of a large fluid intake, the drug should be stopped.

4. There is some disagreement among observers as to the influence of the p_H of the urine on the incidence of renal damage, as we have shown. Since some believe that an alkaline urine tends to reduce crystal forma-

26. Carroll, Grayson; Kappel, Louis, and Lewis, Bransford: Sulfathiazole: A Report on Clinical Investigations, J. A. M. A. 115:1350-1352 (Oct. 19) 1940.

27. Rammelkamp, C. H., and Stoneburner, L. T.: Sulfathiazole: A Clinical and In Vitro Study of Its Infections of the Urinary Tract, New England J. Med. 224:45-52 (Jan. 9) 1941.

28. Strauss, Elias; Lowell, F. C.; Taylor, F. H. L., and Finland, Maxwell: Observations on the Absorption, Excretion and Distribution of Sulfanilamide, Sulfapyridine, Sulfathiazole and Sulfamethylthiazole, Ann. Int. Med. 14:1360-1382 (Feb.) 1941.

tion,[29] and if the use of alkalis and an alkaline urine are not contraindicated in a particular case, it would be well to administer alkalis and maintain an alkaline urine.

5. There is some evidence to indicate the development of hypersensitivity to the sulfonamides.[30] It is well, therefore, to be extremely cautious and particularly vigilant in the treatment of patients who already suffer from a form of allergy. Patients who have recently received a sulfonamide drug may have been sensitized to such drugs and will react allergically if given another course of one of them.[28] It is better, if there is no need for haste, to give these two types of patients about ½ Gm. of the drug by mouth and wait twelve hours. If no unfavorable reactions result, proceed with the treatment. Such a procedure should also be employed, if possible, in all cases so as to eliminate unpredictable severe reactions that occur because of idiosyncrasy to sulfonamides.

TREATMENT

The drug should be stopped immediately, once the slightest evidence of kidney damage is discovered. Fluids should be administered in large quantities, as described. Ureteral catheterization should be done promptly and the catheter should be allowed to remain in place until a normal volume of urine flow is reestablished. The pelves should be irrigated at two hour intervals with warm (107 F.) distilled water. This procedure is effectual in relieving extrarenal obstruction; an intense diuretic regimen is necessary to relieve intratubular renal obstruction.

The diuretics should be large quantities of fluid and, if necessary, hypertonic solutions of dextrose. Avoid, if possible, the use of magnesium sulfate, as it has been suggested by some that it predisposes to the formation of sulfhemoglobin; but it may be used intravenously if there is no cyanosis and if the oliguria persists after other measures for diuresis have failed. Mercury and acid diuretics should not be used. The patient should be placed on an alkaline ash diet and the urine kept alkaline with the use of sodium bicarbonate.[17] The protein intake should be restricted for four or five days or during the period of severe oliguria, hematuria and azotemia. Fluids should be administered in large quantities for many days after the kidneys have returned to normal.

These patients should be followed and carefully studied from time to time to make sure that there is no residual or latent damage which may become manifest as a chronic disease later. It is not known how complete and permanent the recovery is.

CONCLUSION

To reduce the incidence of renal damage, certain rules should be followed:

(*a*) Check previous sulfonamide medication in order to prevent overdosage.

(*b*) Evaluate the state of the renal function before the drug is administered and proceed accordingly.

(*c*) Evaluate the state of hydration of the patient in order to insure a large volume of urine.

(*d*) It is preferable to maintain an alkaline urine during the administration of sulfathiazole.

(*e*) Guard against allergy, hypersensitivity and idiosyncrasy.

Progressive oliguria, impairment of renal function, azotemia, hematuria, backache or nephromegaly should be indications for discontinuing the drug. The presence of crystalluria alone is no such indication.

Treatment consists of alkalization, diuresis and ureteral catheterization and irrigations with warm (107 F.) distilled water.

29. Sunderman, Pepper and Benditt.[12] Curtis and Sebin.[11]
30. Davidson, Arnold, and Bullowa, J. G.: Acquired Hypersensitivity to Sulfapyridine and Sulfamethylthiazole, New England J. Med. 223: 811-813 (Nov. 14) 1940. Stiles, M. H.: Hypersensitivity to Small Doses of Sulfathiazole, Pennsylvania M. J. 44: 823-824 (April) 1941. Shavin.[26]

PERIPHERAL ARTERIOSCLEROSIS IN THE DIABETIC AND THE NONDIABETIC

A STUDY OF ONE HUNDRED AND SIX AMPUTATED LEGS

JAMES R. LISA, M.D.
MORTON MAGIDAY, M.D.
AND
JAMES FINLAY HART, M.D.
NEW YORK

It has been repeatedly stated that peripheral arteriosclerosis occurring in diabetic patients differs from that of the nondiabetic. This has aroused considerable controversy and has given rise to many differences of opinion. In view of this we have compared the vascular system in the amputated legs of the diabetic and the nondiabetic patients operated on at the New York City Hospital, Welfare Island, between Jan. 1, 1930 and Dec. 31, 1940. Our findings indicate that the type of arteriosclerosis is similar in the two groups. The only difference as we found it lay in the changes seen in the veins.

Our series consisted of 106 patients, of whom 55 were diabetic and 51 were nondiabetic. There were 109 operations, 56 among the diabetic and 53 among the nondiabetic. In each instance the operation was performed at the level of the thigh.

The vascular tree was dissected from the site of amputation as far down toward the toes as possible. A careful description of the gross appearance was made. Sections were taken from the popliteal, anterior tibial, posterior tibial and dorsalis pedis arteries with the accompanying veins, small vessels and the surrounding soft tissues. In the majority of instances two or more levels of the same artery were studied. In some cases the dorsalis pedis was not sectioned. In several instances portions of the femoral, peroneal and the interosseus arteries were included in addition to the usual sections.

As a routine stain hematoxylin and eosin was used and in the majority, in addition, a modified Weigert elastic stain was employed.

In our series the white patients predominated. There were 95 of the white race and 11 of the Negro. In the 95 white patients we found 49 diabetic and 46 nondiabetic. Of the 106 patients there were 70 men and 36 women. Among the men we found 27 diabetic and 45 nondiabetic, while among the women there were 28 diabetic and 8 nondiabetic.

The relationship between the age incidence, the sex and the color was the same among the diabetic and the

From the Department of Laboratories and the First Medical Division, City Hospital, Welfare Island, Department of Hospitals.
Read before the Clinical Society of the New York Polyclinical Medical School and Hospital at the stated meeting on Oct. 6, 1941.

nondiabetic. The average age of the diabetic was 65.5 years for the men and 65 for the women. In the male group the white patients had an average age of 65.3 years; the only Negro was 74. Among the women the average age of the whole group was 65.2 years. All the Negroes, 5 in number, fell into the seventh decade with an average age of 64 years. The youngest person in all the groups was a white man aged 44. The oldest was in the ninth decade and was a white man aged 82. There were 33 of the 55 patients between 60 and 69 years of age. Seven were younger and 15 were beyond the seventh decade. Among the nondiabetic the men averaged 68.1 and the women 67 years. The white men had an average age of 67.1 and the women of 67 years. There were only 4 Negroes, and they averaged 75.5 years and there was only one Negro woman, who was 65. The youngest person in the nondiabetic group was a white man aged 48 and the oldest was a white man aged 86. The majority of cases fell into the seventh and eighth decades, in which there were 20 and 19 respectively. The Negroes, of whom there were only 4, were all over 70 years of age. The white women, 7 in number, were also in the seventh and eighth decades.

Judging by the histories there was but little difference in the type of onset between the diabetic and the nondiabetic. We found notations relating to the onset in 105 of the 109 cases. There were four clinical types apparent: traumatic, infectious, trophic and insidious. In the 54 diabetic patients in this group we found 16 with a definite history of trauma as a precipitating factor. There were 3 with histories of frank infection; 8 were associated with trophic changes and 27 with an insidious onset. In the nondiabetic patients there were 13 with a history of trauma, 1 with a frank infection, 9 associated with trophic changes and 29 in whom the onset came on insidiously.

Mortality rates likewise varied little in the two groups. Up to the generally accepted forty-eight hour period for postoperative deaths there was a mortality of 6, or 11 per cent, in the diabetic and 5, or 10 per cent, in the nondiabetic. During the next eight days there were 8, or 15 per cent, diabetic deaths and 12, or 23 per cent, among the nondiabetic. From the tenth to the thirtieth day there were 13, or 23 per cent, who died in the first group and 7, or 14 per cent, in the second. The tabulation was carried out to the sixtieth day, and in the second thirty days 5, or 9 per cent, of the diabetic, and 6, or 12 per cent, of the nondiabetic died. The sixty day total, therefore, for the diabetic was 32 deaths, while that for the nondiabetic was 27.

PATHOLOGIC FINDINGS

The pathologic changes in the arteries were similar in the diabetic and the nondiabetic. In fact we were unable to distinguish one type from the other without the aid of a history. To prove this to our satisfaction we examined, at several periods of our study, the individual slides after all marks of identification had been obscured. Without exception every attempt to classify the specimens as diabetic or nondiabetic failed. Hence because we were unable to group the changes as diabetic or nondiabetic we are presenting our findings without regard to this classification.

Because the amputated legs contained no elastic arteries, we are limiting our discussion to the muscular arteries and the arterioles. We noted in our studies of the muscular branches that sclerotic changes were consistently present and were extensive as a rule. It was also noted that the media was the coat that bore the brunt of the sclerosis. Calcification was found in all but 6 cases. When it was well defined the deposit was largely in the media. In the early stages or in cases in which the deposit was light it was invariably found at the internal elastic lamina first and is then built up toward and into the media.

Fibrosis was universal and in the majority of cases was severe. It was practically always accompanied by inflammatory reaction and organization with granulation. The latter was frequently seen to progress to bone formation, when spicules of lamellar bone and bone marrow of fatty or fibrous nature were found. Functioning bone marrow with hemopoiesis was seen seven times, four times among the diabetic and three times among the nondiabetic. The six heretofore mentioned as being free from calcification likewise showed slight or minimal atherofibrosis.

Changes in the intima of the muscular branches were just as frequent and severe as in the media but of a different nature. Atheromatous deposits were in direct relationship to the caliber of the artery. The larger the vessel, the more the liability to atheromatous deposits in the intima. It was found that the popliteal artery presented such deposits frequently, the tibial arteries less frequently and the dorsalis pedis only infrequently. In the few instances in which the change was present in the dorsalis pedis the deposit was extremely heavy in the larger arteries. As a rule the changes in the smaller arteries were characterized by an intimal fibromatous deposit.

Arteriolar sclerosis, the type generally stated to occur in the arterioles and the fine twigs of the arterial tree, was recognized frequently enough to be a positive finding although not a universal one. Its presence or degree of involvement was in no manner related to the changes found in the muscular arteries. Hence it has become our strong conviction that the changes occurring in the arterioles were independent of those in the muscular branches.

In the veins, however, conditions were different. Acute venous thrombosis of the larger radicles was found less frequently among the diabetic than among the nondiabetic. This was found nine times in the former and nineteen times in the latter. Venous changes of a chronic nature such as are seen in phlebosclerosis were also less frequent in the diabetic. They were found in 11 of the diabetic and in 22 of the nondiabetic patients. Occasionally these changes had progressed to calcium deposits in the walls, but this was not a common finding.

Lymphangitis was almost invariably found where infection was present regardless of the presence or absence of diabetes. Pathologic changes in the nerves were never demonstrated in either group.

DRY GANGRENE

Dry gangrene occurred in 7 of the diabetic legs. In these cases the gangrene began as a dry process and remained so during the entire course. In the nondiabetic, dry gangrene with a similar progress was found

11 times. Cases in which the gangrene began as a dry affair and later became infected and developed cellulitis were 9 in number in the diabetic and 17 in the nondiabetic. In other words the first evidence of arterial occlusion with mummifying gangrene was present in 16 of the diabetic and 28 of the nondiabetic patients. The nondiabetic with a gangrene originally dry often developed a subsequent cellulitis. Such a development was found to occur twice as frequently in the nondiabetic as in the diabetic.

WET GANGRENE

Moist gangrene occurred in 32 of the diabetic cases and in only 20 of the nondiabetic. But few cases in either group developed a dry gangrene after the onset of the moist stage. There were 5 among the diabetic and only 2 among the nondiabetic, however, that came into this group. In the entire series 46 of the diabetic were associated with cellulitis at some time or another. Among the nondiabetic the total was slightly lower, 39 having a cellulitis at some period.

COMMENT

Joslin [1] and Wilder [2] believe that four types of arteriosclerosis can be distinguished: atherosclerosis, arteriolar sclerosis, Mönckeberg's sclerosis and senile sclerosis. Our data on atherosclerosis in this study are limited to its manifestations present in the legs. We can say, however, that this form of arterial change was frequently found in the larger muscular arteries such as the popliteal, with a diminishing occurrence as the branches got smaller. We also recognized arteriolar sclerosis in some of our cases. We feel, however, that we cannot accept Mönckeberg's or senile sclerosis as clearcut subdivisions. It seems to us there is no one type of arteriosclerosis that can be called by either of these terms. Likewise we feel that the changes in the arteries of the legs so frequently are a combination of atherosclerosis and the so-called Mönckeberg's sclerosis that the generic term of arteriosclerosis might be more applicable.[3]

Atherosclerosis, according to Joslin, is the characteristic vascular lesion among the diabetic. He accepts the fact that all types of arteriosclerosis are found in the legs of the diabetic with atherosclerosis predominating. He states that, in the legs removed from diabetic patients, he found a marked intimal involvement of the muscular arteries consisting of a heaping up of the intima with deposition of fatty material in which many cholesterol crystals were seen. He emphasizes the fact that atherosclerosis, supposed to be found only in the elastic type of arteries in the nondiabetic, is of common occurrence in the muscular arteries of the legs of diabetic patients. Wilder accepts the importance of atherosclerosis in the diabetic. He differs from Joslin, however, by saying that atherosclerosis may be found in the smaller muscular arteries of the nondiabetic. He feels that the frequency of atherosclerosis is not unusual in the arteries of the diabetic but the intensity of the process and the incidence of severe grades in the arteries of the heart and the legs are significantly greater in the diabetic than in the nondiabetic. He looks favorably on the evidence of Warren [4] that long duration of diabetes is attended with more progression of atherosclerosis in the heart and legs than can be due to aging but says that many patients with diabetes of long duration present no more atheroma at autopsy than the nondiabetic of the same age.

We cannot agree with either Joslin or Wilder that atherosclerosis is the predominating form of arterial change in diabetic gangrene of the extremities. Nor can we agree with Joslin that it is not found in the muscular arteries of the leg in the cases of nondiabetic gangrene. Furthermore, we cannot accept the statement of Warren that the extent of the atheromatous change is in direct relation to the duration of the diabetes. Our feeling is that in a percentage of diabetic patients atheromatosis predominates but that in an equal percentage of the nondiabetic the same condition is found. Our studies show us that atherosclerosis may be mild or severe in either type of gangrene. When it is severe it is marked by extensive plaques in the large arteries and lesser deposits in the smaller branches. It is only in these severe cases that the dorsalis pedis artery becomes involved. Severe atherosclerosis therefore not only presents more involvement of the elastic arteries but extends peripherally toward the smaller arteries. This, we will repeat, is true for both types of gangrene.

Arteriolar sclerosis is generally accepted as a well defined lesion that may be found, among other places, in the finer twigs of the arteries of the legs. Root and Sharkey [5] of the Joslin Clinic, after a study of 175 autopsies with 48 instances of diabetic gangrene of an extremity, reported that atherosclerosis is the rule in these cases and that hypertension appears to accentuate the process. They describe an intimal lesion with hyaline thickening and obliteration of the lumen. Wilder feels differently about the situation, saying that arteriolar sclerosis is no more frequent in the diabetic than in the nondiabetic. Though accepting the presence of arteriolar sclerosis in the extremities of the diabetic, he emphasizes the occurrence of medial hypertrophy, stating that it may be associated with atheromatous processes of the intima. We found arteriolar sclerosis in both types. It was the medial hypertrophy described by Wilder. However, we did not find the atheromatous changes associated with the medial hypertrophy. Nor did we find the extensive atheromatous process described by Root and Sharkey. Very rarely there was present calcification of the media close to the internal elastica. This was the closest approximation to so-called Mönckeberg's sclerosis of the larger muscular arteries that we encountered. Excluding any vascular lesions that might have been present in the kidney, the medial hypertrophy of the arterioles of the legs bore no relationship to the presence or absence of hypertension. Likewise it did not seem to bear any resemblance to occlusive disease of the large arteries in the immediate neighborhood.

Mönckeberg's sclerosis does not seem to us to be, in the legs at least, sufficiently cleancut to be considered an entity. Classification of this type of arterial change therefore is difficult, and a comparison of its occurrence in diabetic and nondiabetic patients is of questionable value. We have the feeling that if it is to be considered

1. Joslin, E. P.: The Treatment of Diabetes Mellitus, ed 7, Philadelphia, Lea & Febiger, 1940.
2. Wilder, R. M.: Clinical Diabetes Mellitus and Hyperinsulinism, Philadelphia, W. B. Saunders Company, 1940.
3. MacCallum, W. G.: Textbook of Pathology, ed. 6, Philadelphia, W. B. Saunders Company, 1936.
4. Warren, Shields: Pathology of Diabetes Mellitus, ed. 2, Philadelphia, Lea & Febiger, 1938.
5. Root, H. F., and Sharkey, T. P.: New England J. Med. 215: 605 (Oct. 1) 1936.

at all it must be looked on simply as a manifestation of atherosclerosis. According to Joslin it is a patchy involvement of the media without the accumulation of lipid. He brings out the point that it occurs together with atherosclerosis and in such close relation that it suggests strongly that they are the same process. Wilder agrees that it is patchy, goes on to necrosis and calcification and lacks lipid deposits. He believes that it involves the legs by predilection. Like Joslin he considers that the primary seat is in the media and that it well may be a part of the same process as atherosclerosis. We accept the presence of a condition generally called Mönckeberg's sclerosis but we feel that the process is an arteriosclerosis whose character is determined by the anatomic structure of the arteries in which it is found. MacCallum has stated that one may well expect the manifestations of arteriosclerosis to be different in different portions of a system varying so greatly in its anatomic structure. However, as far as we were able to identify it in the specimens concerned in our studies we were unable to note any difference in its presence in either the diabetic or the nondiabetic.

Senile sclerosis likewise seems to us to be a misnomer. Let us consider Joslin's conception of this subdivision of arteriosclerosis. He accepts it as a diffuse fibrosis causing a change in the elastic tissue with a loss of elasticity and degeneration. Wilder, who also uses this term in his classification, considers it a diffuse change consisting of progressive deterioration with splitting of the internal elastic membrane and formation of new fibrous tissue. We can take no issue with these findings but we cannot accept that these changes are of a senile nature. We feel that this is not positively a condition of old age, as it is found occasionally in childhood, frequently in the third decade, and may be practically absent in the eighties and nineties.

Combinations of the various types of arteriosclerosis are frequently found. This naturally leads to great difficulties in arriving at clearcut conceptions of the various subdivisions and often makes it difficult to determine the type present in the individual case. Joslin states that any or all varieties may be associated with the so-called senile type. He also says that Mönckeberg's sclerosis and atherosclerosis are a very common coincidence. Wilder notices the same combinations. We found the different types of arteriosclerosis occurring in various combinations. There was, however, no difference in the combinations found in the diabetic and the nondiabetic specimens.

Occlusion of the lumen of the artery is the serious development in arteriosclerosis. It is generally accepted today that such occlusions can be attributed mainly to atherosclerosis with a rare incidence due to Mönckeberg's sclerosis. The other types are not held responsible for any part in this phenomenon. Ordinarily the process develops slowly, but it may be found at times to advance rapidly. The time element may not be the sole factor, as some cases appear to occur with a rapid tempo. As the atheromatous process progresses there is a tendency for degenerative changes to occur in the endothelium. This degeneration is the prelude to arterial thrombosis. A second process can occur. Instead of thrombosis there may be ulceration with a discharge of the underlying atheromatous deposit into the blood stream.

In our study we found an equal number of diabetic and nondiabetic patients with gangrene from occlusion. In view of the fact that the diabetic incidence in the general populace is about 1 per cent, our finding of an equal number in each group coming to amputation suggests strongly that peripheral occlusive disease is many times more frequent in the diabetic.

Both acute and chronic changes were more frequent in the veins of the nondiabetic. This may be accidental, but it does suggest that the condition of the veins may have a definite bearing on the more frequent occurrence of venous occlusion in the nondiabetic.

It is commonly stated that diabetic gangrene is usually moist and nondiabetic gangrene dry. To this we cannot agree. We found that almost two thirds of the nondiabetic specimens were complicated at some time with cellulitis, with but a slightly larger number of diabetic patients similarly involved. Again early and extensive cellulitis was not uncommon in the nondiabetic, although it was somewhat more frequent in the diabetic.

Since these findings are contrary to those of most investigators, several questions arise: 1. Does the phlebosclerosis which we found more frequently in the nondiabetic play a role in the increased incidence of infection? 2. Are there metabolic tissue changes in the diabetic which are the deciding factors in the absence of phlebosclerosis? 3. Is the term "wet gangrene" too loose and would the use of more rigid criteria help to differentiate the conditions found in the presence of infection?

With regard to the phlebosclerosis, our findings are suggestive that it may play a role; but no dogmatic statement can be made. Metabolic changes can very well be considered as possible factors, as it is well accepted that infection in any part of the body is more severe among the diabetic than among the nondiabetic. With regard to the final question, we believe that the term "gangrene" is used rather promiscuously. We feel that a more careful observation and use of terms is advisable. As Williams and O'Kane [6] have shown in their classification, careful evaluation of the physical findings will usually distinguish between the result of occlusive disease and infection.

SUMMARY AND CONCLUSIONS

The peripheral vascular pathologic condition of 109 amputated legs was studied. There were 56 diabetic specimens and 53 nondiabetic specimens. The two types were in the same age period. The women outnumbered the men in the diabetic group. The opposite was true in the nondiabetic group. The arterial changes were similar in the two groups. Acute venous occlusions and phlebosclerosis were more frequent among the nondiabetic. Infection with cellulitis was only slightly more frequent in the diabetic group. Dry gangrene occurred almost as frequently in the diabetic as in the nondiabetic. The occlusive element in arteriosclerosis is the dangerous feature in both types. The terms dry and wet gangrene do not properly describe the conditions found. More rigid criteria and more careful differentiation between the lesions secondary to occlusive arterial disease and those due to infection should be instituted.

939 Woodycrest Avenue.

6. Williams, F. W., and O'Kane, T. J.: Surg., Gynec. & Obst. 64: 956 (May) 1937.

DOES DIABETES MELLITUS PREDISPOSE THE PATIENT TO THE PYOGENIC SKIN INFECTIONS?

A STUDY OF THE ETIOLOGIC RELATIONSHIP OF FURUNCULOSIS AND CARBUNCLE

JOHN R. WILLIAMS, M.D.
ROCHESTER, N. Y.

There is a prevailing impression among both physicians and laymen that boils and carbuncles are commonly associated with diabetes and that the diabetic are predisposed or more likely to suffer from these pyogenic skin infections than are the nondiabetic. An examination of the literature does not support this view. The *Cumulative Index*, beginning with the year 1917 to March 1941, covering a period of more than twenty-five years, lists only seven articles dealing with carbuncle or furunculosis in association with diabetes. In each instance they are case reports and descriptions of surgical treatment. None of the standard manuals on diabetes discuss the incidence of skin infections, the text being confined to treatment. This is also true of many of the prominent manuals relating to the general practice of medicine. It may be said, therefore, that there is practically no evidence in the literature supporting the conclusion that diabetes mellitus predisposes to pyogenic skin infections. Since these infections are usually very serious as to comfort and often fatal, the subject is worthy of more careful study than it has thus far received.

In an attempt to learn how frequently furuncles and carbuncles occur both independently and in association with diabetes, a study was made of the admissions to two large general hospitals, the Strong Memorial and the Rochester General, and of the office practice of several general practitioners.

In one of these hospitals during the years 1938, 1939 and 1940 there were a total of 27,209 admissions. Of these, 330 were diabetic patients, 8 of whom were afflicted with boils or carbuncles. In the remaining 26,879 patients there were 166 instances of boils or carbuncles.

In the other large general hospital over the same period there were 43,980 admissions; 295 patients were afflicted with boils or carbuncles; of these 8 were diabetic.

Since the advent of insulin and the improvement in the general treatment of diabetes, only diabetic patients afflicted with a serious complication have sought admission to hospitals. For the most part too they are the elderly or middle aged. This is particularly true of patients with carbuncles.

In 2,130 office patients of four general practitioners, there were 89 instances of furunculosis or carbuncles. In this group there was but 1 diabetic patient who had a furuncle. From these data it is obvious that there is no significant etiologic relationship between pyogenic skin infections and diabetes.

It is important to inquire how frequently diabetic patients contract skin abscesses. In doing so it should be borne in mind that, when a person is once afflicted, diabetes becomes a permanent malady. Under the present method of treatment the diabetic apparently live on indefinitely. I have under my care several patients who acquired diabetes before the advent of insulin. Some of these were children at its onset. They have lived fairly normal lives since; many have married and have achieved parenthood. The diabetes is not a disabling handicap. Many patients have thus gone on from five to twenty-five years. A certain number of nondiabetic persons in such a period of time would normally contract pyogenic skin infections. It follows therefore that a similar proportion of diabetic patients may be expected to become infected.

A study of 500 diabetic patients admitted to both office and hospital practice was made with reference to the incidence and occurrence of the pyogenic skin infections diagnosed as boils and carbuncles. They are classified according to sex and age in the accompanying table.

In only one instance did the onset of a boil coincide with the discovery of diabetes. In all the other cases except 1, both boils and carbuncles occurred long after the onset of diabetes and apparently as an independent and unrelated phenomenon. In the 1 case that was an exception the carbuncle occurred ten years before the onset of the diabetes.

Occurrence of Boils and Carbuncles in Five Hundred Cases of Diabetes

	Cases
Young, under 21 years	75
Old, over 21 years	424
Male	240
Female	260
Boils, total occurrence in 500	13
Carbuncles, total occurrence in 500	7

Although the numbers of cases in this study are small, they support the opinion and conclusions of other workers who have examined the question. They are as follows:

1. The prevailing assumption that diabetes mellitus predisposes an individual to pyogenic skin infections is not supported by clinical investigation.

2. Pyogenic skin infections occur no more frequently in diabetic than in nondiabetic individuals.

3. Both of these complications occurred more frequently in the middle aged and elderly in whom a general breakdown was evident. It is extremely doubtful that diabetes increases the susceptibility of the diabetic appreciably to pyogenic skin infections.

388 Monroe Avenue.

Yellow Fever Surveys.—The discovery of a simple test in the mouse for the presence of immune bodies to yellow fever, and the fact that after a natural infection with yellow fever immune bodies persist for very many years—probably for the life of the individual—have enabled surveys to be undertaken for the purpose of determining the distribution of yellow fever both in space and time. Such a survey was initiated in Africa in 1933 by the International Health Division of the Rockefeller Foundation. The results of the survey in the Anglo-Egyptian Sudan, published by Hewer (1934) and by Sawyer and Whitman (1936), show that if the specificity of the test is accepted yellow fever is not confined to the West Coast of Africa, as was believed for many years, but extends eastward as far as the White Nile.—Findlay, G. M.; Kirk, Robert, and MacCallum, F. O.: Yellow Fever and the Anglo-Egyptian Sudan: Distribution of Immune Bodies to Yellow Fever, *Ann. Trop. Med.* **35**:121 (Dec. 31) 1941.

FATTY DEGENERATION OF THE LIVER IN PREGNANCY

REPORT OF A CASE WITH RECOVERY: CHEMICAL AND HISTOLOGIC STUDIES

FRANK E. WHITACRE, M.D.
AND
L. Y. FANG, M.D.
PEKING, CHINA

Acute yellow atrophy of the liver, also known as icterus gravis, acute parenchymatous hepatitis, malignant jaundice, parenchymatous degeneration of the liver or acute necrosis of the liver, is a widespread degeneration of the liver with toxic manifestations, jaundice and a reduction in the size of the liver. We prefer the term acute necrosis as more descriptive of the condition but will adhere to acute yellow atrophy, as it is so well established in the literature. It is known to occur at all ages in both sexes but is rare in pregnancy. The first case of acute yellow atrophy of the liver in pregnancy was described by Kerkring in 1706 and quoted by Williams,[1] and most writers since then have referred to the relation of the disease to pregnancy. Although very rare, it may be epidemic, as reported by Kent,[2] who observed 14 cases within eighteen months, all in association with pregnancy. But Kent's series lacks pathologic confirmation. In association with pregnancy, acute yellow atrophy of the liver is generally included among the toxemias of pregnancy. Typical attacks have occurred in men and in nonpregnant women, which should separate it from the toxemias of pregnancy as the term is commonly used.

Judging from the pathologic observations, there is a milder form of the disease which is variously known as acute hepatitis, toxic hepatitis and obstetric acute yellow atrophy. Hepatitis in the sense of evidence of infection is not the predominant lesion, but rather extensive fatty degeneration of the central portions of the liver lobules without actual necrosis or atrophy. Fatty degeneration of the liver seems to be a more descriptive term. The onset and the usually fatal clinical course are identical with those of true acute yellow atrophy, and the location and type of lesion, that is, fatty changes in the liver cells in these central portions of the lobules, are the same. Although the liver cells in these areas are not disintegrated, that would seem to be a matter of degree rather than of kind of disease. Until more convincing evidence is presented, we will consider this condition as an early stage of acute yellow atrophy.

INCIDENCE

The frequency of acute yellow atrophy of the liver is quoted by different authors in wide variation, but all agree that it is very rare. There is little information on the incidence of this disease in China.

In reviewing the case histories of the Department of Obstetrics and Gynecology of the Peiping Union Medical College, we found only 4 cases in the records of approximately 10,000 deliveries. Two of these cases were discarded because of insufficient evidence. One had been reported by Hsiung,[3] and a report of the remaining case is now in process of publication.

Among 94,000 patients admitted to this hospital the diagnosis of acute yellow atrophy of the liver has been made for only 12. For 9 of these the diagnosis was made only on the clinical findings; 7 were men, and 5 were women in 4 of whom the disease was in association with pregnancy. The 3 cases in which autopsy was done appeared among the records of 3,400 autopsies.

Dr. Gordon King[4] of Hongkong stated that acute yellow atrophy of the liver had not been observed during the past 31,113 deliveries from the year 1926 to 1940 inclusive in the department of obstetrics of the University of Hongkong.

Dr. Amos Wong[5] of Shanghai informed us that at St. Luke's Hospital, Shanghai, acute yellow atrophy of the liver had not been observed during 450 autopsies performed over a period of three years, while at the Red Cross Hospital it was observed three times in 700 autopsies over a period of thirteen years. In 1 case the disease had been in association with pregnancy. One can say only that this condition is very rare in China.

Blood Analyses

Date	Time	Bilirubin	Nonprotein Nitrogen	Urea Nitrogen	Uric Acid	Amino Acids	Chlorides	Sugar	Carbon Dioxide
1/30/41	12 n.	6.7	32	11.4	4.7	7.4	...	111	38.2
1/31/41	9:20 a.m.	11.4	43	15.5	4.0	11.4	...	143	46.7
2/ 1/41	4 a.m.	11.4	..	....	...	...	...	180	39.6
	8:10 a.m.	....	..	....	...	...	...	200	39.7
	9:25 a.m.	....	38	18.0	4.0	9.0	520	95	36.6
	11:10 a.m.	12.7	..	....	...	...	...	98	
	4 p.m.	11.4	..	....	...	...	...	85	
	8:15 p.m.	....	..	....	...	...	...	90	
2/ 2/41	8:10 a.m.	6.6	33	15.5	3.6	6.7	508	111	36.0
	5 p.m.	...	..	....	...	...	...	49	
	8 p.m.	...	..	....	...	...	...	140	
2/ 3/41	8 a.m.	5.0	26	11.4	3.3	5.8	508	44	
	4 p.m.	...	..	....	...	...	...	57	
2/ 4/41	9 a.m.	4.0	24	9.4	3.0	4.5	625	...	50.4
	9 p.m.	...	..	...	...	...	...	40	
2/ 5/41	10:50 a.m.	4.0	25	9.0	2.4	5.4	620	105	44.9
	10:30 p.m.	4.5	..	...	...	...	...	97	
2/ 6/41	10:20 a.m.	5.0	22	12.7	2.6	4.2	581	133	39.3
2/ 7/41	3:45 p.m.	5.0	24	12.1	2.4	5.2	580	154	49.4
2/ 8/41	10 a.m.	5.6	29	15.0	2.2	6.3	620	105	48.6
2/ 9/41	9:40 a.m.	5.7	33	14.0	2.4	6.7	500	65	39.6
	5:30 p.m.	...	..	....	...	...	...	70	
2/10/41	8:50 a.m.	5.1	26	11.4	2.2	6.7	...	77	45.3
	4:40 p.m.	...	..	....	...	...	...	87	
2/11/41	8:10 a.m.	3.0	25	12.1	2.2	6.6	640	77	39.7
	5 p.m.	...	..	....	...	...	...	100	
2/12/41	8:40 a.m.	2.3	26	12.1	2.8	6.6	...	91	52.3
2/13/41	8:25 a.m.	3.6	26	12.0	1.8	6.9	585	87	55.1
	11 p.m.	...	..	....	...	...	...	74	
2/14/41	8:30 a.m.	2.2	30	12.0	2.1	5.5	500	105	57.9
2/15/41	8:30 a.m.	...	..	....	...	...	...	100	
2/16/41	4:40 p.m.	2.0	..	....	...	...	...	80	

All the values are expressed in milligrams per hundred cubic centimeters of blood except the carbon dioxide combining power, which is in volumes per cent.

ETIOLOGY

The cause of acute yellow atrophy of the liver is still in question, and it may be that various factors work simultaneously in an individual case. The disease has been definitely associated with certain chemical poisons, for example chloroform, arsenic, phosphorus, cinchophen and carbon tetrachloride, to mention only a few.

Many theories are advanced to explain this condition. Of importance is the work of Opie,[6] who found that

From the Department of Obstetrics and Gynecology, Peiping Union Medical College.

1. Stander, H. J.: Williams Obstetrics, ed. 7, New York, D. Appleton-Century Company, Inc., 1936, p. 722.
2. Kent, Celal: Zentralbl. f. Gynäk. **62**: 429 (Feb. 19) 1938.
3. Hsiung, V.: Nat. M. J. China **14**: 211 (Aug.) 1928.
4. King, Gordon: Personal communication to the authors.
5. Wong, Amos: Personal communication to the authors.
6. Opie, E. L.: J. Exper. Med. **12**: 367, 1910.

the combination of chloroform and infection may produce in dogs a condition similar to acute yellow atrophy in man. Changes in the liver produced by disturbances in metabolism may explain the fact that in more than one half of the reported cases involvement has occurred during the last half of pregnancy, at a time when changes in metabolism are well known to occur. Previous damage to the liver has been suspected, and both catarrhal jaundice and cirrhosis of the liver have been accused.

The Peiping Union Medical College Hospital admits a large number of patients in the terminal stages of disease. The relative number who have pregnancy with complications is high. It is surprising that, in an area where the nutritional state of the population is low, the incidence of avitaminosis and nutritional edema is high and where previous damage to the liver, such as cirrhosis, is relatively common, acute yellow atrophy of the liver associated with pregnancy has occurred not more than five times in this hospital in twenty years. It seems probable that a single infection or toxin is not responsible but that a combination of factors in the presence of impairment of hepatic function may produce the disease.

REPORT OF CASE

A few cases of recovery from acute yellow atrophy of the liver which were based on clinical observations have been reported. The case reports of Townsend[7] and Millar[8] brought in the question of chloroform poisoning, the dangers of which are well established. The diagnosis in the case reported by Duncan and MacLachlan[9] is not convincing. One case of acute yellow atrophy of the liver in pregnancy, with recovery, was described by Way[10] but the diagnosis was supported only by observation of the size of the liver at operation. In a search of the literature we found no report of a case of proved acute yellow atrophy, or fatty degeneration, of the liver in association with pregnancy with recovery. We are reporting such a case, including data on two biopsies of the liver, in considerable detail, in the hope that added chemical, histologic and clinical data may finally result in a better understanding of this obscure disease. The detailed account of the stormy course, the treatment and the studies on the patient, who was admitted to our service in the early stage of the disease, is as follows:

A Chinese woman aged 30, a secundigravida and primipara, was admitted to the hospital on Jan. 30, 1941 not definitely in labor. Her expected date of confinement was February 21. She had had antepartum care in our hospital and was found to have a flat pelvis; the diagonal conjugate measured only 10 cm. The blood Wassermann and Kahn reactions were negative. Her first baby had been born spontaneously two years before, after a labor of forty-eight hours, but the baby died of convulsions three days after birth. On January 25 the patient was brought to our teaching clinic for demonstration of cephalopelvic disproportion, and at that time she complained of general weakness and loss of appetite and had eaten but little for several days. The patient caught cold on the same day and started to have epigastric discomfort, with vomiting of coffee ground material on the following day. She gave a history of repeated vomiting of the food eaten during the course of gestation until two weeks before admission. Constipation had been present for the past three days. Jaundice was not noticed by the family members. She had been an opium addict for four months, but otherwise there was no history of taking any drug or medicine.

On admission the temperature was 37.5 C., the pulse rate 90 and the blood pressure 110 systolic and 80 diastolic. The patient was icteric, mentally dull and drowsy but conscious. She had the symptoms and signs of infection of the upper part of the respiratory tract, but the lungs were clear and the heart was normal. The spleen and the liver were not palpable, and the area of hepatic dulness was not diminished. The patient vomited several times, producing a coffee ground material; the reaction to the guaiac test was strongly positive for blood. The van den Bergh reaction was direct and immediate, and the icterus index was 20. The bilirubin content was 6.7 mg. and the carbon dioxide combining power was 28 volumes per cent. The liver, by the bromsulphalein test, showed 40 per cent retention after thirty minutes. The hemoglobin

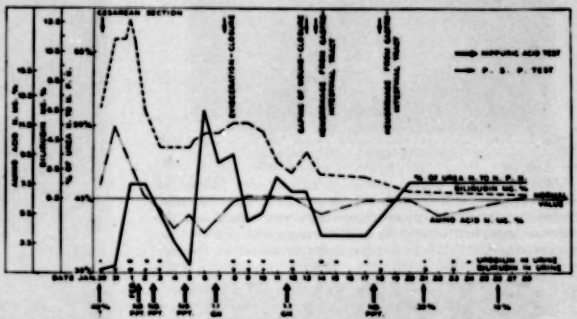


Fig. 1.—Fatty degeneration of liver in pregnancy; liver function.

content was 14.9 Gm. and the white blood cell count was 29,400. The urine showed a trace of albumin and urobilin (1 plus) but was negative for bilirubin. Intravenous dextrose therapy was started after a sample of blood for chemical tests was obtained. (The actual amount of dextrose solution and blood transfusions administered to this patient are recorded in figure 9.)

The patient had moderate labor pains for four hours without progress, and drowsiness increased until she was in stupor. A tentative diagnosis of early acute yellow atrophy of the liver was made, and termination of the pregnancy was thought to be wise. A cesarean section was done, and, although local anesthesia was tried, the patient was uncooperative, and gas and oxygen with a little ether had to be used. The baby was apneic at birth but cried vigorously a few minutes later. The liver was found to be normal in appearance and size, and a biopsy specimen was obtained.

On January 31 the patient coughed severely. The jaundice was worse, the icterus index being 75 and the bilirubin content 11.4 mg. There was no albumin or sugar in the urine but there were bilirubin (2 plus) and tyrosine (detected by the sulfuric acid test), 1 plus; tests for leucine gave negative results. On February 1 the blood sugar level steadily rose to 280 mg. with sugar (1 plus) and acetone (3 plus) in the urine. Ten units of insulin was given, and in two hours the blood sugar fell to 26 mg. and the patient was in hypoglycemic shock, from which she recovered after the intravenous injection of a solution of dextrose. The bilirubin in the blood increased to 12.7 mg. on the same day. From February 2 to 6 the patient was steadily improving, although the violent coughing

7. Townsend, Eric: Brit. M. J. 2:558 (Sept. 9) 1939.
8. Millar, W. M.: Brit. M. J. 1:1284 (June 24) 1939.
9. Duncan, Cameron, and MacLachlan, G. R.: Am. J. Obst. & Gynec. 25:157 (Jan.) 1933.
10. Way, Stanley: Lancet 2:934 (Oct. 28) 1939.

persisted. The blood sugar was low in spite of the repeated dextrose infusions and the patient had frequent symptoms of hypoglycemia. Insulin, 5 to 10 units, was given together with each dextrose infusion during the first few days. The jaundice improved, and the bilirubin in the blood fell to 4 mg. on

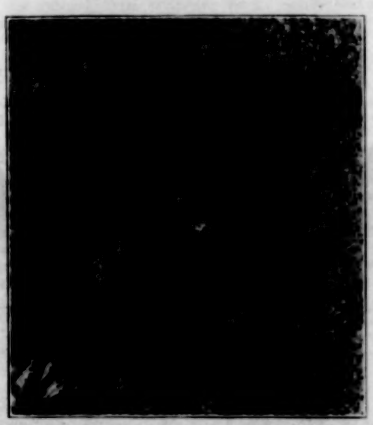


Fig. 2.—First biopsy specimen, showing central vein in the center with thin rim of normal liver cells around portal spaces; × 55.

February 4. The patient developed ascites, with leakage of bile tinged ascitic fluid from the wound. The renal function, judged by the phenolsulfonphthalein test, was normal and the hippuric acid test of hepatic function repeatedly produced no precipitate. On February 7, after severe coughing, the abdomi-

Fig. 3.—First biopsy specimen, showing swollen clear liver cells and compressed sinusoids around a central vein; × 300.

nal incision separated and loops of bowel were extruded. A secondary closure was done under spinal anesthesia. The liver was smaller than before and yellow tinged, and another biopsy specimen was taken. Much bile tinged ascitic fluid was removed by suction. The hippuric acid test done on that day showed 1.1 Gm. of benzoic acid. For the next few days the patient was critically ill, the bilirubin in the blood increased and she coughed almost continuously. On February 13 the abdominal incision gaped again, a loop of intestine was found caught in the wound and there were symptoms and signs of partial intestinal obstruction. Another closure, with silver wire as the suture material, was done on the same day with the aid of spinal anesthesia. There was a moderate amount of fluid in the peritoneal cavity, and the liver was not inspected as the incision was infected. On February 14 and 18 the patient had profuse hemorrhage from the gastrointestinal tract, the discharge from the duodenal tube being bright red, and as much as 1,400 cc. of dark old blood was passed in the stools on one occasion. She was in shock several times and had to be given blood transfusions together with infusions of dextrose. After February 19 the patient gradually improved and there was no more bleeding. The jaundice disappeared, the bilirubin in the blood reaching the normal value on February 20 and the intravenous administration of dextrose was not necessary after February 23. The bromsulphalein test showed 30 per cent retention at the end of thirty minutes on February 21, 10 per cent on February 26 and a trace on March 7. The

Fig. 4.—Second biopsy specimen, showing stage of recovery with clear cell occupying only about half of each lobule; × 55. Compare with figure 2.

temperature and the pulse rate fluctuated according to the severe clinical course. On February 8, when the patient was in desperate condition, the temperature was 39.6 C. (104 F.) and the pulse rate 140. After this both the temperature and the pulse gradually improved until they were normal on February 20. An infection in the incision was drained, the wound healed and the patient has apparently completely recovered.

CHEMICAL ANALYSES

The clinical picture on admission strongly suggested an early process of liver damage. A blood specimen showed sugar of 111 mg., uric acid of 4.7 mg., nonprotein nitrogen of 32 mg., urea nitrogen of 11.4 mg. and amino acid nitrogen of 7.4 mg. per hundred cubic centimeters of blood. The blood sugar was normal, while the uric acid and amino acids were at the upper limit of normal range. The urea nitrogen was 35 per cent of the nonprotein nitrogen, which was somewhat low as compared with 45 per cent, the average ratio in normal pregnancy according to Stander.[11] The carbon dioxide combining power of 28.2 was far below the value for normal pregnancy at term of 45 volumes per cent, indicating a low alkali reserve. The bilirubin of 6.7 mg. and the icterus index of 20 were considerably above the normal values. The van den Bergh test was direct

11. Stander, H. J.: Bull. Johns Hopkins Hosp. 35:133 (May) 1924.

and immediate. The bromsulphalein test showed 40 per cent retention after thirty minutes. These findings suggested some form of liver damage. The blood sugar rose steadily during the next three days as a result of the large amounts of dextrose given. Subsequent blood specimens showed significant changes on January 31 (the fifth day of the disease), when the bilirubin was 11.4 mg. At this time the urea nitrogen formed 36 per cent of the nonprotein nitrogen and the amino acids reached a high point of 11.4 mg. On February 1 the bilirubin was 12.7 mg. and the icterus index was 120. The blood chlorides were consistently high throughout the course of the disease. On February 8 the serum albumin was 1.7 Gm. and globulin 2.8 Gm. per hundred cubic centimeters of blood. The patient was improving, when coughing produced evisceration and made a second operation necessary. This setback may account for the fall in the urea nitrogen ratio to nonprotein nitrogen, increase in bilirubin and amino acid nitrogen and the fall in blood sugar. The blood chemical studies were continued daily until the values were within normal limits. The blood sugar was carefully watched because of its dangerous fluctuations and it finally became stable on February 12.

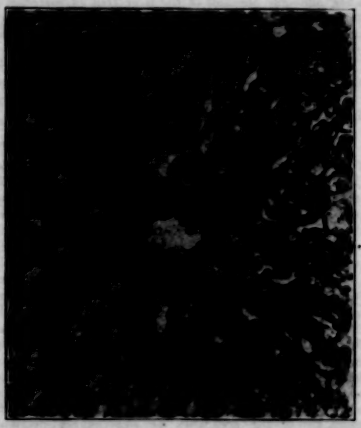


Fig. 5.—Second biopsy specimen, showing stage of recovery with droplets of fat occupying less of area of each cell; × 300. Compare with figure 3.

The urinary findings were not so complete. The twenty-four hour urine specimens were examined for urea nitrogen, the values being 1.8 Gm. on January 31, 156 mg. on February 3 and 576 mg. on February 6. Tyrosine was found in the urine on January 31, and leucine was negative. The excretion of urea was decidedly low and corresponded both with the low blood urea and with the severe clinical course. Ammonia nitrogen and the total nitrogen were not determined, but as the carbon dioxide combining power showed no acidosis after the first day we may assume that no unusual amount of ammonia was excreted.

Bollman, Mann and Magath [12] showed that formation of urea and deaminization of amino acids in the body are dependent on the liver. These experiments explain the significance of a relative decrease in the urea nitrogen and increase in the amino acid nitrogen in the presence of damage to the liver. The low urea nitrogen, high amino acids, high bilirubin and the fluctuations of the blood sugar all pointed to an advanced degree of disintegration of liver function. Just as the pathologic changes observed in the liver of a recovered patient are not quite as extensive as those from an autopsy specimen, so also the chemical findings are not as striking as is seen in fatal cases.

12. Bollman, J. L.; Mann, F. C., and Magath, T. B.: Am. J. Physiol. 60: 371 (July) 1924; 78: 258 (Oct.) 1926.

OTHER LABORATORY FINDINGS

On admission the blood hemoglobin was 14.9 Gm., red blood corpuscles 5.5 million and white blood corpuscles 29,400, of which 84 per cent were polymorphonuclear leukocytes. The red cell count and hemoglobin were affected by intestinal bleeding late in the course of the disease. The leukocyte count gradually rose to 38,000 on February 7 and then slowly fell to 12,000. Daily examinations of the urine showed an occasional trace of albumin; sugar was positive on many occasions, and acetone was detected only once. Bilirubin was positive during the first few days, and urobilin was consistently positive up to February 24. The renal function as shown by the phenolsulfonphthalein test was 60 per cent in two hours on February 6, February 17 and March 15. No casts were found. Cultures of the abdominal wound were positive for Staphylococcus citreus on six occasions. Staphylococcus aureus was

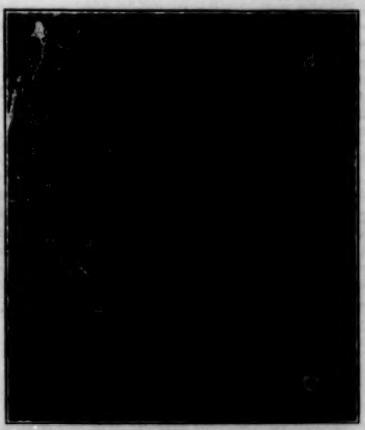


Fig. 6.—Second biopsy specimen, showing fat laden liver cells occupying half of each lobule around the central vein; × 55. (Fat stain with scarlet red.)

Fig. 7.—Second biopsy specimen, showing fat droplets within the liver cells; × 300.

cultured once from the blood. Blood agglutination tests against Eberthella typhosa, Proteus X 19, Salmonella enteritidis and Brucella abortus were all negative.

PATHOLOGIC OBSERVATIONS

The pathologic examinations were made by Dr. C. H. Hu. The first biopsy revealed that the liver architecture was normal. The liver cells in the central three fourths or four fifths of each lobule showed very distinct cell borders and clear cytoplasm in which the granules were gathered into a small clump situated in the neighborhood of each nucleus, while the rest of the cytoplasm contained very few granules. Toward the periphery of the lobule the liver cells were less clear, their cytoplasmic granules became more uniformly distributed and the cell borders were less conspicuous. The liver cells in the central portion of the lobule also contained a small amount of yellowish pigment, which was absent in those at the periphery. There was no evidence of cell necrosis.

The sinuses were very narrow or collapsed. The Kupffer cells were inconspicuous. Occasionally one such cell in the central portion of the lobule contained a yellowish pigment.

Fig. 6.—Second biopsy specimen, showing stage of recovery with small bile duct and mild hepatitis above and junction of normal liver cells with those containing fat below; × 300. Mitosis indicated by arrows.

The periportal spaces showed no striking change with the exception of infiltration by a few polymorphonuclear leukocytes and lymphocytes. The bile ducts were normal. The diagnosis was central fatty change of the liver, slight hepatitis.

The second biopsy revealed similar general microscopic features, but the following differences may be noted:

1. The clear cell central zone was smaller. It represented about one half instead of three fourths or four fifths of a lobule.

2. Infiltration of the polymorphonuclear leukocytes, lymphocytes and plasma cells was slightly more conspicuous.

3. The nonclear cells adjoining the clear cell zone showed frequent mitosis. Mitoses were also sometimes observed in the clear cells.

Frozen sections of both biopsy specimens stained with scarlet red were studied. They showed that the clear cells were filled with fat globules, most intensive in the middle one third to one half of the lobule and surrounded by a less intensive middle zone, bordering on the unaffected cells near the portal spaces. The diagnosis was central fatty change of the liver, slight hepatitis.

SIGNIFICANCE OF PATHOLOGIC FINDINGS

At the first operation there was a small amount of clear yellowish green fluid in the peritoneal cavity. The liver was normal in size and color. A small piece of tissue for biopsy was taken from the inferior margin. Except for its pallor it was not remarkable in appearance. During the second operation, nine days later, a large amount of bile tinged ascitic fluid was removed by suction. The liver was definitely smaller and a yellow tinge was apparent. The lobulations were normal and the site where tissue was removed for the first biopsy was healed. No nodular elevations were found, and the surface was smooth. A second specimen for biopsy was taken from the inferior margin of the liver. Grossly, the piece of tissue appeared lighter in color than the previous one but was otherwise not remarkable. From the pathologic report and accompanying photomicrographs, it was clear that the biopsies did not show areas of necrosis and that only a slight degree of hepatitis was present. The predominant lesion in both specimens was one of definite fatty degeneration involving four fifths of the liver cells around the central vein of each lobule in the first one and only one half of the liver cells in the same areas in the second. The affected cells were swollen with vacuoles of fat while a rim of cells around the portal spaces remained unaffected. It seemed definite that most of the fat laden cells may return to normal, when not irreparably damaged, without pronounced changes in the structure of the liver as reported in cases of nodular hyperplasia by Umber,[13] Miller and Rutherford,[14] Whipple[15] and Pool and Bancroft.[16]

CLINICAL COURSE AND TREATMENT

It was of great importance that we demonstrated this patient on Jan. 25, 1941 to our students in discussing another subject. At that time she stated that she had had vomiting on and off through the whole pregnancy but that there had been no vomiting for several weeks. Loss of appetite and general weakness for one week before admission were sufficient to compel her to stay in bed. There was no icterus or other complaints. She contracted an infection of the upper part of the respiratory tract on January 23, and vomiting of coffee ground material began on January 26. On admission, vomiting of material containing blood, icterus and drowsiness were the outstanding findings. The temperature, pulse and blood pressure were within normal limits, and the physical examination revealed nothing of importance except the respiratory infection. The history of persistent vomiting for four days and the increase in drowsiness to the point of stupor were of course significant. Termination of the pregnancy as soon as the diagnosis of acute yellow atrophy of the liver is established is recommended by De Lee.[17] The symptoms, the clinical findings and the presence of cephalopelvic disproportion decided the immediate course of treatment. As delivery could not be expected for hours or days, a cesarean section was performed, and during the operation removal of a piece of liver tissue for biopsy seemed justifiable. Unfortunately, in her drowsy state she was uncooperative to the use of local anesthesia, and gas and oxygen had to be used, supplemented by a small amount of ether. During the active course of the disease the blood sugar was determined several times a day before dextrose infusions. For twenty-five days she received from 210 to 370 Gm. of dextrose daily by intravenous infusions, mostly in the form of 20 per cent in isotonic solution of sodium chloride. In spite of the large amounts of dextrose given, the blood sugar was low and the patient had frequent symptoms of hypoglycemia. Small doses of insulin, 5 to 10 units, were given together with the infusions, in the hope that the sugar would be better utilized. It was not probable that hypoglycemia was due to the very small amounts of insulin given because this condition also occurred when no insulin was being used, and the failure of

13. Umber, F.: Deutsche med. Wchnschr. 45:537 (May 15) 1919.
14. Miller, J., and Rutherford, A.: Quart. J. Med. 17:81 (Oct.) 1923.
15. Whipple, A. O.: Am. J. Surg. 61:655 (May) 1939.
16. Pool, E. H., and Bancroft, F. W.: Surg., Gynec. & Obst. 37:44 (July) 1923.
17. De Lee, J. B.: Principles and Practice of Obstetrics, ed. 7, Philadelphia, W. B. Saunders Company, 1938, p. 423.

the liver to store glycogen must have played an important role. On one occasion when the blood sugar was 280 mg. with sugar and acetone in the urine, 10 units of insulin was given. The blood sugar fell to 26 mg. within two hours, and the patient was in hypoglycemic shock. Blood transfusions of 200 to 400 cc. were given on eleven occasions in twenty-two days. The violent and continued coughing of the patient resulted in a complete separation of the abdominal wound on two occasions. During the repair of the first separation, a further study of this obscure liver condition by biopsy, with the patient in good condition, seemed desirable and harmless. Bleeding from the upper part of the gastrointestinal tract, which occurred after the second separation of the wound, complicated the picture. The prothrombin time was normal at the time of bleeding. Sulfanilamide was given cautiously, only 6 Gm., and discontinued. Sulfapyridine was given on February 13, 6 Gm. in twenty-four hours, and discontinued because of gastrointestinal hemorrhage. Throughout the entire course of the disease, opiates were administered in varying amounts as necessary. Thiamine hydrochloride 5 mg. twice daily was given during the first few days and later the dose was reduced to 5 mg. daily. The blood pressure and the fundi were found to be normal, but one week after operation, when the blood pressure was elevated, the fundi showed hypertensive changes of the retinal vessels. The irregular heart beat persisted throughout the course of the disease. An electrocardiogram taken on March 7 suggested myocardial damage, while a subsequent examination on March 19 was normal. The bromsulphalein and hippuric acid tests repeatedly showed impairment of liver function until March 7.

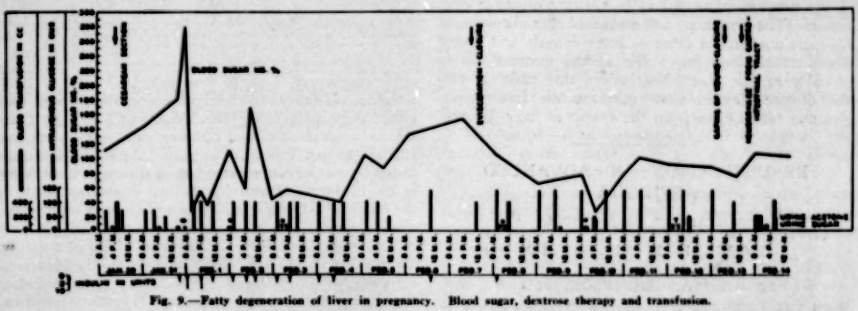


Fig. 9.—Fatty degeneration of liver in pregnancy. Blood sugar, dextrose therapy and transfusion.

COMMENT

The demands on the liver are especially insistent in the last half of pregnancy. This patient had not been eating well for ten days. An infection of the upper part of the respiratory tract in the presence of impaired liver function may well have been the etiologic factor.

The importance of early recognition and treatment of this condition cannot be overemphasized. Too little attention is frequently given to mild symptoms. The occurrence of fatigue and loss of appetite in a woman near term is significant. With the appearance of icterus, investigation is indicated, and, if drowsiness ensues, the diagnosis of liver damage is almost certain. The life of the patient depends on vigorous treatment with dextrose and termination of the pregnancy by the most conservative means. Also the many and timely blood transfusions contributed to the recovery of the patient.

It will be noted that the area of fatty degeneration involved three fourths to four fifths of the liver lobules in the first biopsy, at the time when the blood chemistry indicated liver damage. It is fair to assume that during the next two days, when the patient was in critical condition and when the chemical findings of the blood showed greater impairment of liver function, that the extent of liver damage was also correspondingly increased. The second biopsy showed intensive fatty degeneration but involving only one half of each lobule, and at this time the chemical findings in the blood also indicated improvement. From this and the observations of others in fatal cases there seems to be a rather definite correlation between the extent of fatty degeneration and the results of the blood chemical tests. Stander [18] reported a fatal case which was more severe but otherwise similar to ours. One of the cases reported by Baens and Espinola [19] also was similar.

Sheehan [20] reported 6 fatal cases very similar, if not identical, to this one as a separate entity apart from true acute yellow atrophy and suggested the name obstetric yellow atrophy. We are not willing to do this on the basis of present knowledge, because the clinical course is identical, and the location and general type of lesion are the same. We may have to change our conception, but at this time it seems to be a matter of degree; that is, acute fatty degeneration of the liver is one stage in the process of necrosis. It seems reasonable to conclude that the dose of the hormone, toxin, poison, infection or combination of these factors could be insufficient to cause actual necrosis but still be sufficient to be usually fatal.

The cause of both ascites and hemorrhage from the upper part of the gastrointestinal tract was not clear. There was no cirrhosis of the liver to account for these conditions. The renal function as determined by the phenolsulfonphthalein test was normal. The ascites in this case might have been due to the extremely low level of serum albumin. The hematemesis was probably not caused by varices. The duodenal tube did not cause the bleeding, as it continued after the tube was withdrawn and stopped after the tube had been replaced. Penner and Bernheim [21] explained bleeding of this nature in cases of shock due to peritonitis, diabetic acidosis, hemorrhage or operation on the basis of a

18. Stander, H. J., and Cadden, J. F.: Am. J. Obst. & Gynec. 28: 61 (July) 1934.

19. Baens, Alfredo, and Espinola, Noe: J. Philippine Islands M. A. 17: 679 (Nov.) 1937.

20. Sheehan, H. L.: J. Obst. & Gynaec. Brit. Emp. 47: 49 (Feb.) 1940.

21. Penner, Abraham, and Bernheim, A. I.: Acute Postoperative Esophageal, Gastric and Duodenal Ulcerations: Further Study of Pathologic Changes in Shock, Arch. Path. 28: 129 (Aug.) 1939.

disturbance in the vasomotor mechanism of the stomach or duodenum producing ulcers. Our studies of the blood sugar lead us to suspect that during the course of this disease some patients die of hypoglycemia rather than as a result of the extent of liver damage.

SUMMARY

Clinical, chemical and pathologic studies of a patient who recovered from fatty degeneration of the liver in pregnancy were conducted. We had the exceptional opportunity to study the changes in the liver by biopsy on two occasions. There is a correlation between the extent of degenerative changes in the liver and the chemical findings in the blood. In the light of present knowledge we believe this condition to be a less extensive stage of acute yellow atrophy of the liver as seen in pregnancy.

The incidence in China is low, as elsewhere. General malaise, vomiting and icterus in a pregnant woman near term is of great significance, especially when the blood chemical tests indicate liver damage. The appearance of drowsiness is a grave sign.

The prognosis is improved by the early termination of the pregnancy, according to existing obstetric conditions. The immediate and continued administration of adequate amounts of dextrose intravenously and liberal blood transfusions are a life saving measure, as is probable in this case. We believe that patients with this disease may in some instances die from hypoglycemia rather than from the extent of liver damage.

RESUSCITATION IN ADVANCED ASPHYXIA

COMPARISON OF METHODS

GEORGE L. BIRNBAUM, M.D.
AND
SAMUEL A. THOMPSON, M.D.
WITH THE TECHNICAL COLLABORATION OF EUGENE OSTROW
NEW YORK

Aside from its physiologic interests, asphyxia is an important problem in general surgery, anesthesia, industrial surgery, military surgery, air raid casualties and accidents in civil life. Its most frequent forms are carbon monoxide asphyxia, drowning, electric and lightning shock, cave in asphyxia and war gas poisoning.

Because of the confusion which exists on the subject of resuscitation, we have undertaken a series of experiments in an attempt to clarify this problem. We shall present our experimental finding in a series of papers of which this is the first. Later papers of this series deal with the role of positive and negative phases in resuscitation, resuscitation in asphyxia with cardiac failure and the phenomenon and mechanism of resuscitation with inert (asphyxiating) gases, carbon monoxide asphyxia, resuscitation in electric shock and the relief of atelectasis.

In this paper we shall present some fundamental comparisons of methods of resuscitation in (1) obstructive asphyxia and (2) inhalation asphyxia with nitrogen, helium and nitrous oxide. Since drowning is essentially a variety of obstructive asphyxia both as to its mechanism and as to its treatment, it requires no additional consideration other than measures to overcome spasm of the larynx and to clear the airways of fluid.

From the Laboratories of Surgical Research and the Department of Surgery, New York Medical College, and Flower and Fifth Avenue Hospitals. The Department of Physiology cooperated.

TECHNIC

Dogs were anesthetized by the intraperitoneal injection of soluble pentobarbital (1 grain [0.06 Gm.] per cubic centimeter, 1 cc. to 5 pounds [2.3 Kg.] of body weight). They were then placed on their backs and either a specially fitting face mask and pharyngeal airway or a special tracheal catheter with rubber inflation cuff to prevent leakage was used. Asphyxia was produced by mechanical obstruction of the mask or catheter or by inhalation of nitrogen, helium or nitrous oxide at the mask or catheter. Inert gases were used with resuscitation procedures to compare the value of the procedure itself, aside from the question of oxygen supply. The reader should not infer that inert gas is advocated clinically as a therapeutic measure; it is nevertheless true that mechanical resuscitation (rhythmic positive-negative pressure) with an inert gas has well defined and regular resuscitating power.

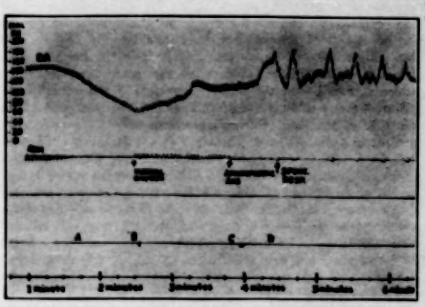


Fig. 1 (dog 13).—Nitrous oxide asphyxia at the mask: *A*, respiration ceases. *B* to *C*, manual artificial respiration with oxygen. Notice the slow recovery of the blood pressure. *D*, spontaneous respiration.

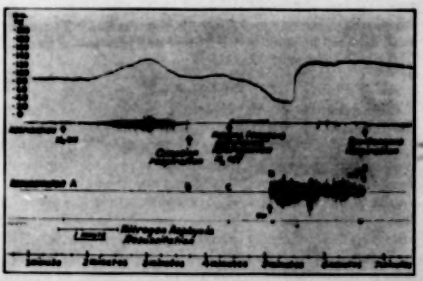


Fig. 2 (dog 6).—Nitrogen inhalation asphyxia at the mask: *A*, nitrogen asphyxia begins. *B*, respiration ceases. *C* to *D*, manual artificial respiration with oxygen inhalation; owing to the continued fall of blood pressure, manual artificial respiration stopped and at *D* the resuscitator with oxygen started. Notice the prompt recovery of blood pressure. *E*, resuscitator stopped; spontaneous respiration.

Respiration was recorded by an intrapleural cannula 4.5 mm. in diameter.

Blood pressure was recorded by means of a cannula in the femoral artery.

Tracings on the kymograph for blood pressure, respiration, resuscitator, rhythmic inflation, rhythmic suction, manual artificial respiration and intratracheal pressure were all obtained by recording mercury manometers.

Mechanical resuscitation (the Emerson resuscitator) was carried out with rhythmic alternating pressure and suction of plus 14 mm. and minus 9 mm. of mercury.

Rhythmic inflation was carried out at 12-15 mm. of mercury pressure.

Rhythmic suction was carried out at minus 8-12 mm. of mercury pressure.

Manual artificial respiration was carried out by moderately vigorous side to side compression of the chest by the extended fingers of both hands at the same time that the thumbs and thenar eminences of the hand compressed the upper part of the abdomen.

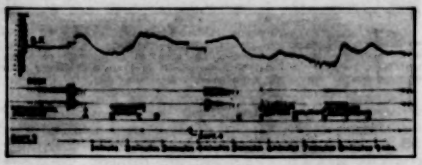


Fig. 3 (dog 18).—First section, experiment 3. Mechanical obstruction asphyxia by clamping intratracheal tube. *A*, respiration ceases. *B* to *C*, manual artificial respiration with nitrogen inhalation; notice the slow recovery of the blood pressure. *D*, spontaneous respiration. Second section, experiment 4. *E*, respiration ceases. *F* to *G*, rhythmic inflation of lungs with nitrogen at 14 mm. of mercury pressure; there was a small initial rise followed by a continued fall of blood pressure. *H* to *I*, resuscitator with nitrogen. *J*, spontaneous respiration begins.

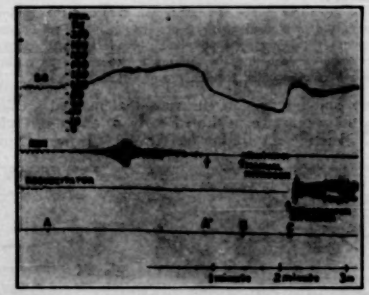


Fig. 4 (dog 5).—Nitrogen inhalation asphyxia at the mask: *A*, nitrogen asphyxia begins. *A'*, respiration ceases. *B* to *C*, manual artificial respiration with nitrogen inhalation; blood pressure continued to fall. *C*, resuscitator with nitrogen started; notice the striking recovery of blood pressure.

Asphyxia was produced by one of the methods described. In general, asphyxia lasts from three to seven minutes before death occurs. Following cessation of respiration there is a varying period of time during which the animal may be resuscitated. This varied up to two and three-quarter minutes. This resuscitation period was definitely dependent on the method of resuscitation employed. Resuscitation was attempted in each animal at the point which was judged to be near the end of the resuscitation period. This critical point was characterized by a decided fall in the blood pressure with a slowing of the heart rate and altered and irregular heart action.

ANALYSIS OF DATA

Manual artificial respiration with oxygen inhalation instituted at the critical point resulted in recovery in 55 per cent of the animals.

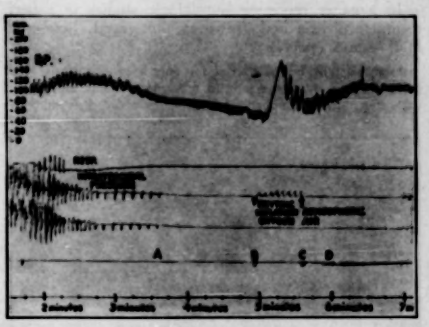


Fig. 5 (dog 22).—Nitrogen inhalation asphyxia by way of intratracheal tube. *A*, respiration ceases. *B* to *C*, rhythmic inflation of the lungs with oxygen at 12 mm. of mercury pressure. *D*, spontaneous respiration.

Rhythmic inflation with oxygen instituted at the critical point resulted in recovery in 78 per cent.

Rhythmic suction with oxygen was successful in 80 per cent.

Mechanical (positive-negative) resuscitation with oxygen was successful in 95 per cent of the animals when applied as a primary procedure.

In order to determine the value of the method alone, without the additional value of oxygen, resuscitation was attempted using instead of oxygen an inert gas (helium, nitrogen).

In this series it was found that manual artificial respiration with nitrogen was successful in 1 out of 7 cases (15 per cent).

Rhythmic inflation with nitrogen was successful in two out of twelve experiments (17 per cent). This is in contrast to the successful experiments reported when oxygen was used.

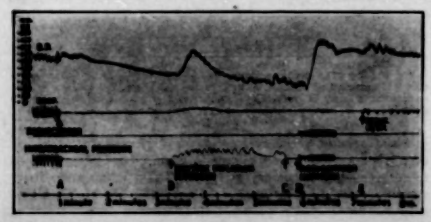


Fig. 6 (dog 13).—Mechanical obstruction asphyxia at the mask: *A*, respiration ceases. *B* to *C*, rhythmic inflation of the lungs with nitrogen at 14 mm. of mercury pressure; notice the tendency for a sustained rise in the manometer recording the intratracheal pressure. *D*, resuscitator with nitrogen started; notice the sharp recovery of blood pressure. *E*, spontaneous respiration.

Rhythmic suction with nitrogen was successful in 1 out of 5 cases (20 per cent). Mechanical resuscitation with nitrogen was successful in 30 out of 41 instances (73 per cent); however, it must be emphasized that 6 of the 11 instances in which it failed were secondary

resuscitation procedures following failure of some other method. A brief report[1] on the phenomenon of asphyxial resuscitation will appear shortly.

COMMENT

In a paper reporting physiologic studies in experimental asphyxia and drowning, Lougheed, Janes and Hall[2] state (p. 426):

Asphyxia may be maintained for only a comparatively short period of time if recovery is to take place. This time varied with the individual animal but rarely exceeded four minutes;

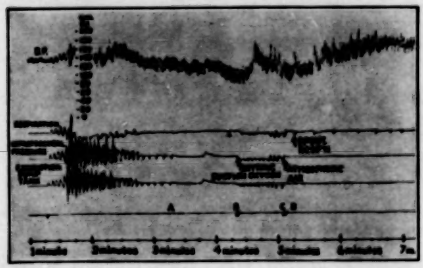


Fig. 7 (dog 22).—Nitrogen inhalation asphyxia by way of intratracheal tube: *A*, respiration ceases. *B* to *C*, rhythmic suction at 8 mm. of mercury pressure with oxygen inhalation. *D*, spontaneous respiration.

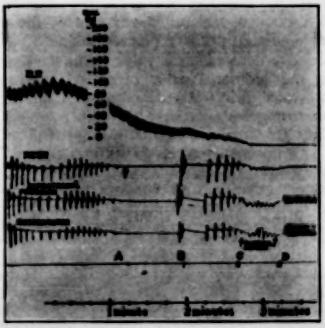


Fig. 8 (dog 22).—Nitrogen inhalation asphyxia by way of intratracheal tube: *A*, respiration ceases. *B* to *C*, asphyxial gasps. *C* to *D*, rhythmic suction at 8 mm. of mercury pressure with oxygen inhalation fails to resuscitate. *D*, resuscitator with oxygen fails to resuscitate.

in some animals recovery has occurred after the trachea has been clamped for seven minutes, while other animals failed to recover after temporary asphyxia of two minutes' duration. Another interesting feature was observed in the time interval between the cessation of respiratory efforts during asphyxia and the cessation of expulsive cardiac beats. This interval varied only from eleven to seventeen seconds. If the asphyxia was maintained four or five seconds longer, resuscitation was of no avail.

1. Artificial respiration: Asphyxia was maintained by clamping the trachea for varying periods of time. As noted in the previous section, the periods of asphyxia after which recovery would take place depended upon the critical interval after the cessation of the respiratory efforts (eleven to seventeen seconds). If the asphyxia was relieved during this short period, spontaneous recovery took place in the great majority of cases. If, however, the asphyxia was maintained for slightly longer

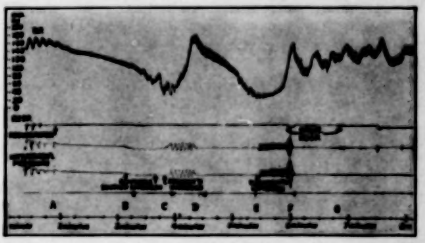


Fig. 9. (dog 20).—Nitrogen inhalation asphyxia by way of intratracheal tube: *A*, respiration ceases. *B* to *C*, rhythmic suction at 8 mm. of mercury pressure with nitrogen inhalation; blood pressure continues to fall. *C* to *D*, resuscitator with nitrogen. *E* to *F*, resuscitator with nitrogen started again. *F*, spontaneous respiration.

periods of time (even a few seconds) spontaneous recovery did not take place. In this period where spontaneous recovery did not occur, artificial respiration if instituted immediately practically always resulted in successful recovery. The longer the period of asphyxia, the longer artificial respiration had to be maintained. It must be emphasized, however, that successful artificial respiration was possible only when started within a few seconds after the time when spontaneous recovery could take place. Precisely the same criteria had to be applied in the cases where asphyxia was produced by experimental drowning.

As a result of our experiments we consider that prompt, adequate and prolonged artificial respiration is the fundamental treatment for drowned, asphyxiated or electrocuted persons. In the case of drowning the additional procedures as outlined above are recommended for the reasons stated.

Our findings support the view that manual artificial respiration must be instituted early to effect resuscitation when the respiration has ceased. However, in a

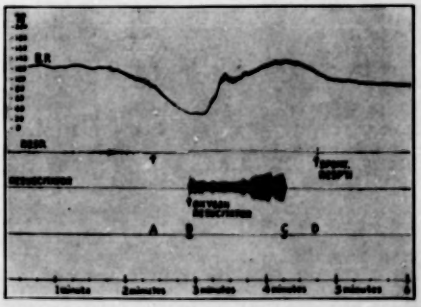


Fig. 10 (dog 5).—Nitrogen inhalation asphyxia at the mask: *A*, respiration ceases. *B* to *C*, resuscitator with oxygen; notice the sharp recovery of blood pressure by resuscitator in contrast to the slow recovery by manual artificial respiration (fig. 1). *D*, spontaneous respiration.

few instances manual artificial respiration with oxygen was effective after a longer period of time following cessation of respiration than the critical period of Lougheed, Janes and Hall. Likewise, resuscitation with

1. Thompson, S. A., and Birnbaum, G. L.: The Phenomenon of Asphyxial Resuscitation; Resuscitaton with Inert Asphyxiating Gases, Preliminary Report, Proc. Soc. Exper. Biol. & Med. 48: 203-204, 1941.

2. Lougheed, D. W.; Janes, J. M., and Hall, G. E.: Physiological Studies in Experimental Asphyxia and Drowning, Canad. M. A. J. 40: 423 (May) 1939.

rhythmic insufflation of oxygen was possible at a longer period after the cessation of respiration. Rhythmic inflation and suction of oxygen was by far the most effective of the methods and at very much longer periods after cessation of respiration.

We have merely touched on the subject of resuscitation with inert (asphyxiating) gases. In subsequent papers of the series this phenomenon and its mechanism will be taken up in detail. It will then become even more evident that the suck and blow mechanism, within safe limits of pressure, rests on sound physiologic principles.

Henderson and Turner [3] have found that suck and blow mechanism, using pressures of plus 15 and minus 15 mm. of mercury, could do no serious harm to the lung. However, they believe that manual artificial respiration is more effective than mechanical resuscitation.

Manual artificial respiration is a valuable procedure and should be immediately instituted when the respiration has ceased and continued until respiration returns or until other and more efficient facilities are available. We have found, however, that positive-negative resuscitation is superior to manual artificial respiration as a life-saving measure. Another feature of positive and negative resuscitation is its efficacy in advanced asphyxia with cardiac failure. We have been able to resuscitate the circulation and respiration many times by a combination of mechanical resuscitation with oxygen plus heart massage; these data will be reported in another paper.

When in asphyxia the respiration has ceased, rhythmic inflation and suction of the lungs at the pressures used gives a distinctly greater pulmonary ventilation than manual artificial respiration or rhythmic inflation. Overventilation and acapnia (carbon dioxide deprivation) is eliminated as a possibility by the addition of 5 to 7 per cent of carbon dioxide to the oxygen.

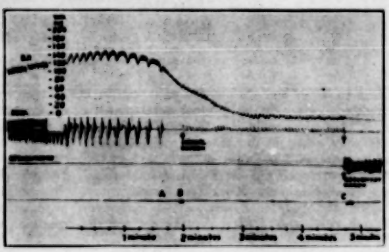


Fig. 11 (dog 11).—Mechanical obstruction asphyxia at the mask: *A*, respiration ceases. *B* to *C*, manual artificial respiration with oxygen inhalation fails. *C*, resuscitator with oxygen fails.

Summary of One Hundred and Six Experiments with Different Resuscitative Procedures

	Oxygen			Nitrogen		
	Success	Failure	Percentage Success	Success	Failure	Percentage Success
Manual artificial respiration	6	5	55	1	6	15
Rhythmic inflation	7	2	78	2	10	17
Rhythmic suction	4	1	80	1	4	20
Resuscitation (rhythmic inflation and suction)	21	1	95	30	5	85

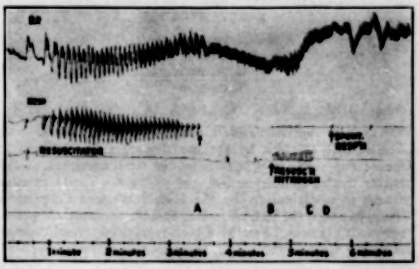


Fig. 12 (dog 37).—Mechanical obstruction asphyxia by clamping intratracheal tube: the phenomenon of asphyxial resuscitation (resuscitation with inert gas): *A*, respiration ceases. *B* to *C*, resuscitator with nitrogen; notice recovery of blood pressure. *D*, spontaneous respiration occurs; animal now allowed to breath atmospheric air.

Moreover, before respiration has resumed, rhythmic resuscitation with positive and negative pressure does not depend on muscle tonus of the respiratory muscles (as do manual artificial respiration, rhythmic inflation alone or rhythmic suction alone) for adequate pulmonary ventilation.

While it is true that mechanical suck and blow resuscitation may work "out of step" with the breathing animal, we advise the use of a resuscitator only when the respiration has failed; when respiration is still going on, inhalation of oxygen or oxygen-carbon dioxide is indicated. When respiration has been restored and acts "out of step" with a mechanical resuscitator, it indicates the successful return of spontaneous respiration and it is time to desist from the use of mechanical resuscitation and to use inhalation.

CONCLUSIONS

1. In advanced asphyxia, after cessation of respiration, rhythmic inflation and suction of oxygen or oxygen-carbon dioxide at safe pressures is definitely superior to manual artificial respiration or rhythmic inflation.

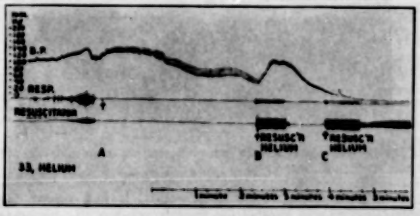


Fig. 13 (dog 33).—Helium inhalation asphyxia by way of intratracheal tube: *A*, respiration ceases. *B*, resuscitator with helium started three and a half minutes after cessation of respiration; a rise and then a fall of blood pressure occurs when the resuscitator is stopped. *C*, resuscitator with helium started again; failure to resuscitate.

2. Rhythmic inflation and suction regularly produce resuscitation even with inert (asphyxiating) gases.

3. Henderson, Yandell, and Turner, J. McC.: Artificial Respiration and Inhalation: The Principle Determining the Efficiency of Various Methods, J. A. M. A. 116: 1508 (April 5) 1941.

Clinical Notes, Suggestions and New Instruments

SEVERE ARSENICAL REACTION ENCOUNTERED IN THE FIVE DAY TREATMENT FOR EARLY SYPHILIS

HERBERT RATTNER, M.D.,
AND
ALFRED B. FALK, M.D.,
CHICAGO

This is to record the first serious reaction affecting the kidneys, liver and heart from the use of mapharsen in the treatment of early syphilis by the five day massive dose method. One of the significant facts noted in our experience of 348 patients treated by this method, and among the 1,150[1] or more patients treated similarly by the Middle Western Cooperative Group, has been the lack of serious damage to important parenchymatous organs. There have been reports of several cerebral accidents,[2] some of them fatal, and minor side effects have been encountered frequently—nausea, emesis, headache, fever, painful arms and toxic eruptions. Aside from transitory albuminuria and a slight elevation of the icteric index, however, there have been no reports of a reaction in which the toxic manifestations were those of an acute glomerulonephritis, anuria, uremia, hepatitis, ileus and pericarditis.

REPORT OF CASE

A Negro aged 23 had a penile chancre of four weeks' duration from which Treponema pallidum was demonstrated and a papular syphiloderm of the body of one week's duration. The blood tests gave strongly positive reactions with a quantitative titer of 40 Kahn units. Except for an attack of typhoid in 1933, he had had no previous illnesses. His general physical condition was excellent. The laboratory studies, which included a complete blood count, blood chemical determination, urinalysis including a urobilinogen determination, icteric index determination and a roentgenogram of the chest, gave results that were within normal limits. For these reasons it was decided that his condition was suitable for the intensive five day treatment by the intravenous drip method.

Fig. 1.—Appearance of the patient during the acute phase of his illness.

Throughout the first day of treatment he along with 4 others undergoing treatment at the same time experienced some discomfort from nausea, emesis, headache and pain in the arm, but he was able to take the full dose for the day of 0.24 Gm. of mapharsen dissolved in 2,000 cc. of 5 per cent dextrose solution. In the evening the emesis became more frequent and he became lethargic. The following morning there was a large quantity of albumin in the urine; later in the day he ceased to void, and during the next eighty hours there was complete anuria and the gradual development of edema of the face. Then dyspnea and orthopnea developed and later moist rales were heard in the base of the left lung. On the fourth day he suffered a generalized convulsion, and after a few hours uremic frost appeared on the nasolabial folds. By this time he was voiding only 500 cc. of urine, which still contained albumin and red blood cells. The nonprotein nitrogen was 170 mg. per hundred cubic centimeters and the creatinine was 16.8 mg. per hundred cubic centimeters.

Fig. 2.—Appearance of the patient one month later.

On the sixth day there was evidence of hepatitis—enlarged liver, icteric scleras and an icteric index of 25—and bothersome singultus and emesis which persisted for two weeks. Ileus developed on the ninth day, and there was considerable distention for forty-eight hours. Then on the eleventh day there appeared a pericardial rub which persisted for three weeks. Despite the later developments, the general well-being of the patient seemed to improve after the first week. There was no precordial pain and he was now voiding 2,000 cc. of urine in twenty-four hours.

He received treatment with digitalis, adrenal cortex extract (eschatin), a prostigmine compound, blood plasma, isotonic and hypertonic fluids intravenously, deep diathermy administered over the renal areas, suction with a Wangensteen apparatus and various other supportive measures.[3]

The patient five and one half months after the reaction shows no effects of it whatever. The blood test gave a negative reaction on the tenth week and has remained negative.

SUMMARY

A case was seen in which acute glomerulonephritis, anuria, uremia, hepatitis, ileus and pericarditis developed from the use of mapharsen in the treatment of early syphilis by means of the intensive five day treatment method. It is the first such reaction encountered among some 1,150 patients treated similarly by the Midwestern Cooperative Group. The patient recovered from the reaction. We have had no fatalities in 348 cases treated by this method.

25 East Washington Street.

From the Department of Dermatology, Cook County Hospital, and the Department of Public Health, State of Illinois, R. R. Cross, M.D., Director, and Herman Soloway, M.D., Venereal Disease Control Officer; with the cooperation of the United States Public Health Service.

1. Information supplied by D. C. Elliott, M.D., United States Public Health Service.

2. Leifer, William; Chargin, Louis, and Hyman, H. T.: Massive Dose Arsenotherapy of Early Syphilis by the Intravenous Drip Method, J. A. M. A. 117:1154 (Oct. 4) 1941. Elliott, D. C.; Buehr, George; Shaffer, L. W.; Usher, G. S., and Lough, S. A.: Massive Dose Therapy of Early Syphilis, ibid. 117:1160 (Oct. 4) 1941.

3. Drs. A. B. Rimmerman and Arthur Bernstein of the medical staff of the Cook County Hospital helped in the management of the patient and, after further observations, will report on the medical aspects of the case.

BASAL METABOLISM IN THE SAME PERSON AFTER AN INTERVAL OF FIFTY YEARS

ADOLF MAGNUS-LEVY, M.D., NEW HAVEN, CONN.

My basal metabolism was first examined in Zuntz's laboratory in 1891 at the age of 26 years. When I was 76 I had the opportunity of having it reexamined by Dr. Walter A. Boothby when I was at the Mayo Clinic in 1941 to give a lecture. During the interval, no measurements were made. Although the figures reveal nothing new, it might be of interest to publish them since they are unique.

The decline of basal metabolism with advancing age, established by Falk and Magnus-Levy,[1] has been subsequently confirmed by a number of workers. Du Bois[2] quotes values of 39.5 calories per square meter per hour at 20 to 30 years and 35.5 calories per square meter per hour at 70 to 76 years, a decrease of 10 per cent.

My record is given in table 1.

The values for surface area are based on Du Bois's formula. The decline in weight has been 7.5 Kg. and is most probably due to dwindling of the musculature, since my fat tissue has always been scarce and since my muscles, which are still firm, were exceedingly well developed and well trained in my youth. The decrease in energy output when expressed in terms of surface area, however, is 17 per cent.

TABLE 1.—*Basal Metabolism of the Author*

Year	Age, Yr.	Oxygen, Cc. per Min.	Carbon Dioxide, Cc. per Min.	Respiratory Quotient	Height, Cm.	Weight, Kg.	Surface Area, Sq. M.	Calories Per Hr.	Calories Kg. per Hr.	Calories Sq. M. per Hr.
1891	26	231.3	192.5	0.83	167.0	67.5	1.76	67	0.99	38.1
1941	76	176.0	158.4	0.90	165.5	60.0	1.65	52	0.87	31.5
Difference	50	−24%				−11%	−6%	−22%	−12%	−17%

TABLE 2.—*Basal Metabolism of Five "Professors"*

"Professors"	Age, Yrs.	Calories, Sq. M. per Hr.	Deviation from Standard Curve: Aub-Du Bois,[3] per Cent	Deviation from Standard Curve: Mayo Clinic (Boothby [3]), per Cent	Deviation from Standard Curve: Harris-Benedict,[3] per Cent
Zuntz [4].....	41	33.6	−14	−13	− 7
	70	30.2	−16		
Magnus-Levy	26	38.1	− 4	− 6	− 2
	76	31.5	−11		
Lusk [5].....	44	42.8	+11	+13	+21
	58	32.7	−12	− 9	− 9
Benedict [5]....	38	38.2	− 3	− 1	+ 6
	57	32.7	−12	− 9	− 9
Du Bois [5].....	39	39.1	− 4	− 4	0
	58	34.5	− 7	− 4	− 4

calories per square meter per hour has been 17 per cent: 38.0 to 31.5. These figures are below the Aub and Du Bois [2] standard both in youth (— 4 per cent) and in old age (— 11 per cent). I was not subjected to undernourishment in Germany in either 1939 or 1940. My blood pressure is 170 systolic and 80 diastolic and my pulse rate is 40 per minute. The latter has always been low, having been less than 50 for twenty to thirty years.

There have been metabolism figures published for another "old professor," my beloved teacher Nathan Zuntz.[4] His seventieth year is compared to his forty-first and sixty-third years. The figures for weight, and its decline, are almost identical with mine, as are also those of oxygen intake and calories per square meter per hour, if one calculates them according to Du Bois's formula instead of Meeh's formula, which was used by Zuntz himself. From 41 to 63 years of age his oxygen consumption and energy output varied only slightly, i. e. within a range of a few per cent. At 70 there had occurred a decrease of 10 per cent in weight, of 15 per cent in oxygen consumption and of 13 per cent in the output of calories when expressed in terms of surface area. Zuntz, without referring to old age, ascribed the decline exclusively to undernutrition during the World War (1916-1917). That period, however, affected him only in a limited way, even though it influenced Loewy, then only 53 years of age, tremendously.

Table 2 presents the figures for a number of "professors" [5] and shows their deviation from several standard curves.

From the Department of Physiology, Yale University School of Medicine.

1. Falk and Magnus-Levy, Adolf: Arch. f. Anat. u. Physiol., suppl., 1899, p. 314.
2. Du Bois, E. F.: Basal Metabolism in Health and Disease, Philadelphia, Lea & Febiger, 1936.
3. Aub, J. C., and Du Bois, E. F.: Clinical Calorimetry, Arch. Int. Med. **19**: 823-831 (May) 1917.
4. Zuntz, Nathan, and Loewy, Adolf: Berl. klin. Wchnschr. **53**: 825-829, 1916; Biochem. Ztschr. **90**: 244-264, 1918.
5. The details are presented in:
Boothby, W. M.; Herkson, J., and Dunn, H. L.: Am. J. Physiol. **114**: 468-484 (July) 1936.
Harris, J. A., and Benedict, F. G.: Carnegie Institution of Washington, Publication 279, 1919.
Lusk, Graham, and Du Bois, E. F.: J. Physiol. **59**: 213-216 (Oct.) 1924.
Benedict, F. G.: Am. J. Physiol. **83**: 650-664 (July) 1928.
Du Bois, E. F.: Personal communication to the author.

Council on Pharmacy and Chemistry

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING STATEMENT. AUSTIN E. SMITH, M.D., Acting Secretary.

The Council on Pharmacy and Chemistry of the American Medical Association records with deep sorrow the death, Jan. 31, 1942, of

Soma Weiss

On January 31 Soma Weiss died at the age of 43 of a spontaneous subarachnoid hemorrhage. In his premature death the medical profession lost one of its greatest leaders. He was a persuasive and stimulating teacher, a resourceful clinician, a brilliant investigator whose interests and contributions extended to the most diverse fields of medical science. Few men have exerted so great an influence or have been so admired and beloved. To his clinic went many of the most able young men in this country. He offered them the wealth of his clinical experience and the stimulation of his constructive imagination. He was their counselor and friend. No one of them departed without enthusiasm or without the desire to contribute to medical teaching and to the advancement of medical science. Today many of his former interns and residents are leaders in their own right and are carrying to others the light which they received from him.

To the work of the Council on Pharmacy and Chemistry Soma Weiss brought a unique experience. While still a young student in Hungary he served for three years as a Research Fellow in Physiology and Biochemistry at the Royal Hungarian University in Budapest. He left Hungary mainly because the disturbed political condition offered a discouraging outlook for study and research. Almost immediately after his arrival in this country he became associated with Dr. Robert A. Hatcher, who was probably one of the first to recognize his remarkable capacity. For the next three years while still a student at Cornell he served as assistant in pharmacology and took an active and often a leading part in many important investigations. After graduation he went to Bellevue Hospital, where he continued his research work. This fundamental training and experience in pharmacology had a significant influence in all his subsequent investigations and clinical activities. At a time when the chief emphasis in teaching was on diagnosis and prognosis, Soma Weiss was one of the few clinicians who could bring exact pharmacologic knowledge to the bedside and who could utilize adequately pharmacologic technics in the vast field of practical therapeutics. At Bellevue, and later in the City Hospital and at Peter Bent Brigham Hospital in Boston, he was exposed to an immense amount of clinical material, which gave ample scope for the application of his methods. With such a background he was able to contribute first hand information concerning most of the problems which came for consideration to the Council on Pharmacy and Chemistry. His fellow members on the Council realize fully what a tremendous loss to medicine his death involves, but they feel also, and more keenly, the loss of a much beloved friend and a wise counselor to whom all freely turned for advice and help.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Eight dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, APRIL 18, 1942

THE VENEREAL DISEASE PROBLEM IN WAR

Invariably in past wars there has been an increase in the rates for the venereal diseases. The Annual Report of the Surgeon General of the United States Army for the fiscal year 1941 shows that the venereal disease rate increased in the recent prewar period of mobilization from 29.6 per thousand men in 1939 to 42.5 per thousand men in 1940.

Infected persons in the civilian population, particularly prostitutes, are links in the chain of infection of the armed forces with syphilis and gonorrhea. Frequently the venereal disease rate in the Army and Navy is comparable to the incidence and prevalence of syphilis and gonorrhea in the civilian population in the area in which the armed forces are located. Therefore the civilian program for control of venereal disease must be maintained at the optimum effective level during war.

The War Department is preparing to meet this problem. A venereal disease control officer will be assigned to each corps area headquarters to stimulate work against venereal disease. Furthermore, army venereal disease control officers will be appointed to each command with a strength of more than twenty thousand men. These new control officers will work with health departments and other civilian agencies. Attempts will be made to examine all contacts with infected men and to treat those who are found infected. The program will also include the strengthening of prophylactic measures, the provision of more adequate physical inspection to detect venereal diseases early, improvement in methods for the diagnosis and treatment of infected military personnel, provision of additional recreational facilities in cooperation with other military agencies, and intensification of the educational program.

A cardinal principle of epidemiology in the control of communicable diseases is limitation of the number of contacts between infected, potentially infected and healthy persons. This principle applies in syphilis and gonorrhea as much as it does in other communicable diseases. Already there is evidence that some physicians have placed in the hands of irresponsible prostitutes certificates with the connotation that these women are free from the venereal diseases. The scientific evidence available indicates that certification of this kind is worthless. Any local, municipal system that encourages such certificates trifles not only with the health of its civilian population but also with that of the Army and Navy.

THE ADJOURNED MEETING OF THE 1940 PHARMACOPEIAL CONVENTION

On April 7 the adjourned session of the decennial U. S. Pharmacopeial Convention reconvened in Cleveland to permit discussion of proposed amendments to the constitution and by-laws. This meeting was in accordance with instructions given by the 1940 convention ". . . to meet at the call of the Board of Trustees to receive the report of the Committee on Constitution and By-Laws. . . ." The committee, which consisted of nine voting members of physicians, pharmacists and one representative of a governmental agency, had been charged with preparing a draft of the new constitution and by-laws promulgated at the 1940 convention. The object of the changes is to reduce the number of delegates to insure a representative delegation and to simplify the general methods of procedure for the convention proper.

The success of the meetings in Cleveland was largely due to the efforts of this committee and the understanding and cooperation of the board of trustees of the Pharmacopeia. This success was not marred by the knowledge that legal opinion had advised that amendments to the constitution could not be finally acted on until the 1950 decennial meeting of the convention. Although the by-laws could be voted on and adopted at the present meeting, none of the new by-laws could replace any of the terms of the present constitution concerning membership requirements, number of delegates or their appointment and terms of office, or the personnel elected at the 1940 meeting. The by-laws which existed at the termination of the latter meeting are effective until the 1950 meeting, but the new by-laws which were discussed and adopted in Cleveland will guide the organization and outcome of the 1950 meeting.

The constitution as read at the Cleveland session was simply received for presentation to the 1950 meeting. Of special interest are certain new statements in the by-laws. Under article II, membership, are the provisions "The members of the United States Pharmacopeial Convention shall consist of accredited delegates representing the following institutions and organizations, and designated divisions of the federal government. . . . Each institution, organization and designated division of the federal government entitled to representation in the United States Pharmacopeial Convention . . . shall be

entitled to one delegate or an alternate in the decennial meetings of the Pharmacopeial Convention. Each delegate or his alternate shall be an officer or member of the academic staff of the college or school, an active member of the association or society, or an employee of the division of the federal government which he represents. . . . A delegate shall not represent more than one college, school, association, society or division of the federal government."

Under the old by-laws, article I, chapter 5, there appeared the ambiguous statement "The General Committee of Revision shall consist of fifty members to be elected at the decennial meeting, together with the president of the convention, ex officio." At the recent convention the members voted that "The General Committee of Revision shall have a membership of sixty persons, of whom twenty shall be qualified in medical sciences and forty in pharmaceutical and allied sciences, together with the president of the Pharmacopeial Convention, ex officio, and the director of the Pharmacopeial Convention, ex officio."

Whereas former by-laws provided for the nominating committee to nominate the officers of the convention, the board of trustees and the general committee of revision, the new amendments state that the secretary of the nominating committee shall request all organizations entitled to representation to submit the names of individuals qualified for this work. Each submitted name must be accompanied by a statement depicting the qualifications of the nominee. Thus, when a delegate presents his credentials he will be offered a list of names of forty persons qualified in the medical sciences and eighty persons qualified in the pharmaceutical and allied sciences. Further nominations may be received from the floor and seconded by at least four delegates. At the final session of the decennial meeting, voting by ballot will be conducted.

No doubt such provisions as these will prevent a repetition of the confusion and doubtful motivations which prevailed in the 1930 assemblage. As the Pharmacopeia plays an ever increasingly important part in the enforcing of laws governing official drugs in interstate commerce, physicians and pharmacists should maintain their interest in providing the best pharmacopeia possible. Because of the significance of the Pharmacopeia to the practice of medicine the American Medical Association, through its Board of Trustees, its Council on Pharmacy and Chemistry and THE JOURNAL, has repeatedly urged efforts toward the development of a pharmacopeia most compatible with the needs of modern medicine. As we have stated before,[1] the adoption of this new constitution and by-laws will be a step toward facilitation of work, discouragement of self seeking, and the maintenance of a scientific spirit.

1. The Pharmacopeial Convention of 1940, editorial, J. A. M. A. **114**: 2116 (May 25) 1940.

FEBRILE DESTRUCTION OF ANTIBODIES

A serious challenge to conventional theory on which fever therapy is based comes from the demonstration by Ellingson and Clark[1] of the University of Wisconsin that hyperpyrexia causes a significant lowering of specific antibody titer in experimental animals. In 1908 Rolly and Meltzer[2] tested the influence of artificial fever on the resistance of rabbits to experimental bacterial infections. Groups of 2 or more rabbits were given repeated sublethal inoculations of pneumococci, staphylococci, Escherichia coli or Pseudomonas aeruginosa. One animal of each group was kept at room temperature to serve as a control and the others were confined to a heated chamber. All the control animals died of the repeated sublethal inoculations. Of the 11 febrile animals (rectal temperatures were not recorded) but 4 died. This was taken as proof that the febrile state increases antimicrobic resistance.

According to the orthodox side chain theory of the time, this increase could mean only that fever increases specific antibody titer. This presumptive logical deduction from their data was confirmed by experimental tests. For example, 2 rabbits which had been inoculated with a cholera vaccine and confined for nine days in a heated box showed specific agglutinin titers of 1:200 and 1:500, or an average of 1:350. Two control rabbits similarly inoculated but kept at room temperature each showed an agglutinin titer of 1:200. Their conclusion that hyperpyrexia accelerates specific antibody production was soon quoted in textbooks of pathology and clinical medicine and became the basis for the widely prevailing belief that fever is a wise provision of nature automatically increasing bodily defenses against invading micro-organisms.

Clinical interest in this conclusion, however, was not fully aroused till von Wagner-Jauregg[3] reported the beneficial effects of artificial malarial infection on tabes dorsalis and dementia paralytica. It was assumed that the resulting febrile state was responsible for the favorable results. This observation started a trend of clinical investigation and trial and led to the acceptance of artificial fever in the treatment of several infectious diseases.

The basic immunologic belief underlying this fever therapy, however, has not been without its critics. Ecker and O'Neal,[4] for example, found that in rabbits immunized against typhoid vaccine the specific typhoid agglutinin titers were depressed fully one half as a result of hyperthermia. Hadjopoulos and Bierman[5] found that the complement fixing antibodies of rabbits previously immunized against pyogenic cocci were similarly depressed.

1. Ellingson, H. V., and Clark, P. F.: J. Immunol. **43**: 65 (Jan.) 1942.
2. Rolly, F., and Meltzer: Deutsches Arch. f. klin. Med. **94**: 335, 1908.
3. von Wagner-Jauregg, Julius: Psychiat.-neurol. Wchnschr. **20**: 132, 251, 1918-1919.
4. Ecker, E. E., and O'Neal, M.: Am. J. Pub. Health **29**: 1050, 1922.
5. Hadjopoulos, L. G., and Bierman, William: J. Lab. & Clin. Med. **20**: 227 (Dec.) 1934.

None of the earlier experimenters or critics used a sufficiently large number of animals or a sufficiently wide range of antigens to render their data statistically significant. Ellingson and Clark therefore repeated the earlier tests on groups of at least 12 rabbits, selecting such typical antigens as sheep erythrocytes, egg albumin and Eberthella typhosa. One series of 12 rabbits, for example, was given three intravenous injections of 5 cc. of 10 per cent washed sheep cells on successive days. Six of these were kept at room temperature, and the others given a severe fever (41.6 C., or 106.9 F., rectal temperature) for periods of four hours on each of the three days of inoculation. The fever was caused by placing the rabbits in well ventilated incubators. Composite data showed that hemolytic amboceptor was produced by both subgroups by the sixth day. In both groups the titer increased to a maximum by the twelfth day and then decreased, till about 50 per cent of the amboceptor had disappeared by the twentieth day. Throughout this process, however, the average titer of the fever group was but half that of the nonheated controls. Thus on the twelfth day the average control titer was 6,400 units of amboceptor, with but 3,840 units present in the febrile animals.

Even more striking differences were seen in the series of 12 rabbits given seven intravenous injections of typhoid vaccine. In this series the injections were made on alternate days. A rectal temperature of 41.5 C. (106.7 F.) was induced in half of the animals for eight hour periods daily for twenty-two days. Throughout the observation period of fifty-seven days the average titer of the febrile animals was rarely more than one-fourth that of the unheated controls. Thus on the twentieth day the average febrile typhoid agglutinin titer was 1:832, as contrasted with an average of 1:2,133 in the normal controls. On the fifty-seventh day the averages had fallen to 1:76 and 1:266 respectively. An equally striking febrile reduction in specific precipitin formation was recorded for groups of rabbits immunized against crystallized egg albumin.

Certain groups of previously immunized rabbits were given fever therapy for an eighteen hour period and examined immediately after this treatment. The average agglutinin titer was reduced three fourths by this heating. Under the influence of a daily fever the titer of these rabbits was further reduced to one eighth of the original by the eighth day. This febrile destruction of specific antibodies was also noted in groups of rabbits passively immunized against the typhoid bacillus.

From these data it would seem that artificial fever not only inhibits specific antibody formation but accelerates antibody destruction. The fact that artificial fever reduces antibody titer, however, does not justify the conclusion that fever therapy is without beneficial effects. Carpenter and his associates,[6] for example, have demonstrated that fever temperatures may actually kill gonococci and the spirochete of syphilis. Dyson[7] and Shaffer[8] have shown that the rate of proliferation of hemolytic streptococci and pneumococci is greatly reduced at temperatures above 40 C. (104 F.). Moreover, circulation may be stimulated and capillary permeability increased by hyperpyrexia, so that local toxic products may be more rapidly neutralized, diluted or removed, in spite of reduced antibody titer.

Finally, it is definitely known that the phagocytic power of leukocytes is increased by febrile temperatures. Ellingson and Clark, for example, found that the maximal phagocytic activity of guinea pig leukocytes is noted between 39 and 41 C. (102.2 and 105.8 F.), the usual fever range in these animals to infectious processes. Rolly and Meltzer found that with human leukocytes phagocytosis is greatest at fever temperatures (39.5 to 40 C., or 103.1 to 104 F.), an observation confirmed by the Wisconsin bacteriologists, who found that the increased phagocytosis even continues till the temperature reaches 41 C. (105.8 F.).

The fact that artificial fever causes a reduction in the titer of all circulating antibodies must be taken into account in future clinical studies of this method of clinical therapy. Whether there is a parallel reduction in the nonhumoral or fixed tissue defenses has not yet been determined, a determination that might have particular significance in virus disease.

6. Carpenter, C. M.; Beak, Ruth A.; Mucci, L. A., and Warren, S. L.: J. Lab. & Clin. Med. 18:981 (July) 1933.

7. Dyson, C. B.: J. Path. & Bact. 47:641 (Nov.) 1938.
8. Shaffer, M. F.; Enders, J. F., and Wilson, James: J. Clin. Inv. 17:133 (March) 1938.

MEDICAL-PHARMACEUTICAL CONFERENCE

THE JOURNAL has drawn attention previously to the Cleveland medical-pharmaceutical conference.[1] A historic and important step was taken to further professional relations between medicine and pharmacy when the conference met on April 6. More than two hundred pharmacists and physicians assembled to hear and discuss papers delivered by Dr. Howard Dittrick, practicing physician of Cleveland, E. F. Kelly, Phar.D., Secretary of the American Pharmaceutical Association, and Robert C. Wilson, dean of the School of Pharmacy, University of Georgia. These papers, which were entitled "Evolution of the Apothecary," "Trends of Pharmaceutical Practice" and "Objectives of the Program of Pharmaceutical Education," were provocative and elicited excellent discussions. Those who participated in the discussion included Dr. Morris Fishbein, Chicago; P. H. Costello, Cooperstown, N. D.; Charles H. Rogers, Minneapolis; Carson P. Frailey, Washington, D. C.; E. Fullerton Cook, Phar.D., Philadelphia; Wortley F. Rudd, Richmond, Va.; A. G. DuMez, Baltimore; Robert L. Swain, New York; Max Lemberger, Milwaukee; Dr. Theodore G. Klumpp, New York, and Dr. Allen H. Bunce, Atlanta, Ga.

1. Medical-Pharmaceutical Conference, Current Comment, J. A. M. A. 118:900 (March 14), 1145 (March 28) 1942.

The evening session included a dinner, with an address by Dr. Morris Fishbein entitled "Status of Medicine and Pharmacy In the War and After," and a formal discussion which was opened by Col. W. L. Fox of the Army Medical Corps, Fort Knox, Kentucky, and Dr. Walter A. Bastedo and Dr. Cary Eggleston of New York.

This joint meeting of the American Medical Association and the American Pharmaceutical Association is historic in that it is the first of its kind in the history of these two organizations. Agreement was general that the appropriate representatives of each association carry back a report of the meeting to their respective board of trustees, with the request that consideration be given to arranging another similar session. While the current meeting resolved itself into one of good will, a further meeting might serve as a basis for more concrete steps to improve medical-pharmaceutical relations and to orient certain common problems.

Current Comment

HAZARDOUS OCCUPATIONS FOR YOUNG WORKERS

The Fair Labor Standards Act of 1938 established a 16 year minimum age for employment in plants manufacturing goods for shipment in interstate commerce and also provided for the establishment of an 18 year minimum age in any occupation found and by order declared to be particularly hazardous for the employment of minors by the chief of the Children's Bureau of the U. S. Department of Labor. Reports and orders already issued by this bureau have dealt with the manufacture of explosives, driving of motor vehicles or serving as helper, coal mining, logging and sawmilling and the operation of wood working machines. Recently a sixth in this series of reports on occupations hazardous to young workers has been issued on radioactive substances, under the guidance of a distinguished list of medical and technical advisers. The recent review is concerned mainly with exposures and working conditions in plants preparing or applying self-luminous dial paint which is crystalline zinc sulfide activated by radium or in plants manufacturing incandescent mantles which are made from rayon mesh fabric dipped in "lighting fluid," a 25 to 50 per cent solution of 99 parts of thorium and 1 part of cerium nitrates. Surveys have demonstrated that unsafe practices persist, although the tragic custom of lip pointing brushes used in dial painting is no longer observed. Investigation in a plant regarded as representative showed concentrations of radioactive gas up to four times the most liberal recommended maximum permissible limit. Every one with substantial knowledge of these industrial processes, including the employers, concurs in the opinion that minors under 18 years of age should not be engaged in work of this description. They are not so likely to possess the qualities of carefulness, neatness, forethought and attention to personal hygiene essential to the observation of safe practice. Hearings will no doubt corroborate the findings in this report; an order will then be issued which will have the effect of eliminating exposure of this kind at least as far as minors under 18 years of age are concerned.

KOCH'S CANCER TREATMENT MEETS THE LAW

THE JOURNAL has repeatedly [1] called attention to the promotion of products by the Koch Laboratories. Again and again it has urged federal agencies to display an interest in the matter. The Detroit *Free Press* for Sunday, April 5, notes that "Federal agents took action Saturday against Koch Laboratories, Inc., 8181 E. Jefferson, by arresting Louis Koch, the concern's secretary treasurer, in Detroit and Dr. William F. Koch, president, in Delray Beach, Fla." It notes that the Kochs "will face charges of violating the Federal Food, Drug and Cosmetic Law on 11 specific charges." The *Free Press* reports that Dr. Koch was arrested on a removal warrant and was released on a $5,000 bond pending a hearing in Detroit on April 15. Assistant United States Attorney John C. Ray is quoted as saying with regard to the concern's synthetic antitoxin "A thimbleful of this liquid sells for $25 to practitioners and they get as much as $300 from patients. Chemical analysis shows that the dilution is so infinitesimal that it would be like dumping a cocktail in the Detroit River at the foot of Woodward and expecting to get a kick out of the water going over Niagara Falls." The *Free Press* reports that "Doctors said it was something like a molecule, so tiny that it can't be seen, to every 300,000,000 gallons of water." The United States Attorney, it is reported, said that the Koch brothers were arrested after a prolonged investigation. The *Free Press* called attention to the fact that "Dr. Koch was named defendant in a malpractice suit in Detroit in 1934 and a jury returned a $25,000 verdict against him while he was head of the Koch Cancer Foundation. Later the verdict was held excessive and in a second trial a jury reduced the amount to $5,500. The suit was started by Alfred A. Fortner, who told the jury Dr. Koch diagnosed an infected knee as a cancer." [2] The procedure of diagnosing as cancer a condition which is not malignant, and then expediting an effective treatment, is old in cancer quackery. For a number of years Koch has issued promotional material which contained reports of an unscientific character with regard to cases in which his preparations had been employed. More recently he circularized physicians with regard to what he refers to as "1:4 Benzoquinone," claiming, without the slightest bit of scientific reference, as noted in the most recent reference below,[1] that it is the effective ingredient in the sulfonamide preparations. Besides Koch there still remain a few other charlatans in the field of cancer who merit federal attention. Perhaps the Koch incident will seem to them a "handwriting on the wall."

1. J. A. M. A. **78**:466 (Feb. 12), 537 (Feb. 19) 1921; **82**:2014 (June 21) 1924; **86**:1469 (May 8) 1926; **88**:928 (March 19) 1927; **89**:296 (July 23) 1927; **106**:2189 (June 20) 1936; **107**:519 (Aug. 15), 1405 (Oct. 24) 1936; **112**:1460 (April 15) 1939; **116**:2525 (May 31) 1941; **117**:216 (July 19) 1941; **118**:734 (Feb. 28) 1942.
2. J. A. M. A. **103**:116 (July 14) 1934; **106**:929 (March 14) 1936.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession.

GOVERNMENT TO PAY FOR HOSPITALIZATION OF CIVILIANS INJURED BY ENEMY ACTION

Surgeon General Thomas Parran, U. S. Public Health Service, and Dr. George Baehr, Chief Medical Officer, Office of Civilian Defense, have issued a joint memorandum on details of the program of the government's paying for temporary hospitalization for civilians injured as a result of enemy action. The funds have been allocated to the U. S. Public Health Service from the President's Emergency Fund. The federal government will reimburse all hospitals caring for civilian casualties in the event of air raids or other enemy action at the rate of $3.75 a day. Any hospital in the nation, voluntary or governmental, may be used as a casualty receiving hospital in the Emergency Medical Service established by the Office of Civilian Defense. Certain institutions in "safe areas" may be used as emergency base hospitals for casualties or other patients whom it may be necessary to evacuate from urban hospitals in exposed areas. For this purpose federally owned equipment may be lent to the base hospital, and their staffs will be supplemented by physicians of the area, who will be commissioned in the reserve corps of the U. S. Public Health Service. The management and control of all such hospitals will remain the responsibility of the local or state authorities. In the establishment of emergency base hospitals, hospitals are now being surveyed and will be classified on a basis of size, equipment and standards of operation.

The organization of medical staffs for base hospitals as units affiliated with casualty hospitals will begin immediately. The physicians and dentists commissioned in the Public Health Service Reserve for service in these hospitals will receive the rank, pay and allowance equivalent to those of the medical corps of the army and will be selected from older age groups, from physicians with disabilities that make them ineligible for military service and from women physicians. They will be assigned to service in regions in which they live as far as possible and will be recruited from the stations of civilian hospitals and cleared through the Procurement and Assignment Service.

DECONTAMINATION OF EYES AFTER EXPOSURE TO LEWISITE AND MUSTARD

The Medical Division of the Office of Civilian Defense, Washington, D. C., submits the following information:

Since publication of the Office of Civilian Defense handbooks "First Aid in the Prevention and Treatment of Chemical Casualties" and "Protection Against Gas," further experience has shown that the 2 per cent solution of hydrogen peroxide recommended for the treatment of eyes following lewisite burns may be injurious if used undiluted. The Chemical Warfare Service now recommends a single instillation in the eyes of a 0.5 per cent solution of hydrogen peroxide as soon as possible after contamination with lewisite. This solution may be prepared by diluting one part of a 2 per cent solution with three parts of water, or one part of a 3 per cent solution with five parts of water. The solution usually found in drug stores is the U. S. P. strength of 2.5 to 3.5 per cent hydrogen peroxide. A 0.5 per cent solution of potassium permanganate has also been found effective as an eye instillation following exposure to lewisite.

In planning decontamination stations, the Medical Division, Office of Civilian Defense, recommends that provision be made near the entrance of the second or shower room for the irrigation of the eyes of contaminated persons. The schematic sketch of a decontamination station in the Office of Civilian Defense publications mentioned shows the irrigation of eyes in the dressing room, whereas this should be carried out in the second or shower room before the bath is given. Delay until the casualty reaches the dressing room will result in more serious injury to eyes which have been contaminated with mustard gas or lewisite.

PROTECTION OF HOSPITALS

A special committee of the American Hospital Association collaborating with the Medical Division of the Office of Civilian Defense has published in bulletin form "Protection of Hospitals," which had been previously published in hospital journals in order to make its contents immediately available. The Bulletin, No. 3, has diagrams showing how sand bag barricades can be used for temporary reinforcement, tells how to protect windows without cutting off ventilation, describes methods of blackout and has a section on protection against fire in which various types of incendiary bombs and methods of fighting them are described. The bulletin discusses also the protection of patients, personnel and building fabrics, air raid shelters, rescue squads, protection of utilities and facilities for the care of casualties.

THE ARMY NURSE CORPS

The Congress of the United States authorized the formation of the Army Nurse Corps on Feb. 2, 1901. However, women nurses figured in military history of the United States as far back as 1776, and when military surgeons in 1847 were first given rank as officers they were allowed to appoint the nurses required in their individual hospitals and to fix the compensation. Legislation in 1861 gave a definite place to women nurses and fixed their compensation at 40 cents a day and rations. During the Civil War there were 3,214 regularly appointed hospital nurses and in addition an unknown number of unpaid volunteers. They were then under the supervision of Miss Dorothy Dix. Between the Civil War and the Spanish-American War, nursing in the army was done entirely by men. When the United States entered the first world war, the Army Nurse Corps comprised 403 nurses, but within eighteen months the corps had increased to 21,480 nurses, most of whom were reserves called to active service through the American Red Cross; 10,400 of these nurses were sent overseas to serve in England, France, Belgium, Italy and Siberia. They served in various kinds of military hospitals, hospital trains and transports, and even with surgical teams in field hospitals. In 1920, in an amendment to the National Defense Act, Congress provided relative rank for members of the Army Nurse Corps and later retirement for length of service and for disability in line of duty.

To be eligible for an appointment in the Army Nurse Corps, the nurse must be between 22 and 30 years of age, unmarried, a citizen, a graduate of an accredited high school and an approved school of nursing, and a registered nurse, at least 60 inches (152 cm.) in height and of standard weight for her age and height. The commanding generals of the corps areas have authority to appoint nurses. The application must be accompanied by an unmounted autographed photograph taken within the preceding two years and a statement from an official of the high school from which she graduated, giving the date and her numerical place in the class. The physical fitness of the applicant is determined by an examination by a board of medical officers at the nearest army post.

The pay of members of the Army Nurse Corps varies from $840 a year with maintenance at the start to $1,380 with main-

tenance after seven to nine years of service, and $1,560 with maintenance thereafter. Nurses are appointed in the relative rank of second lieutenant, and promotion to the higher grades is determined by length of service, special qualifications and examination. The duties of a nurse in a military hospital are the same as those performed by a nurse in a civil hospital of like character, including night duty. The daily period of duty, as far as practicable, does not exceed eight hours.

A nurse may be retired from active service with pay after thirty years of service or, having reached the age of 50 years, after twenty years of service.

LIAISON OFFICER AT MEDICAL FIELD SERVICE SCHOOL

Lieut. Col. Stanton Higgins, Cavalry, United States Army, has become a member of the faculty of the Medical Field Service School, Carlisle Barracks, Pa., as the first Armored Force liaison officer at this school, instruction in this field previously having been given by an infantry liaison officer. It is important that medical officers know where they fit into the present day complicated war machine and equally essential for liaison officers to understand the medical department's role. Lieutenant Colonel Higgins is a graduate of Yale, was first commissioned in 1917 and served in France in the twenty-sixth cavalry and the First Pursuit Group. He is a graduate of the advance course and the troop officers' course of the cavalry school at Fort Riley, Kan., and the armored force school at Fort Knox, Ky., and was professor of military science and tactics in the high schools of Johnson City, Tenn.

ARMY LIBRARIES

The War Department announced on March 22 that when the national emergency was proclaimed the Army had one hundred and forty-seven permanent libraries. Now it has almost six hundred, containing about two million books on a wide variety of subjects. The new libraries have been combined with the service clubs that have been constructed since the war began, although there are libraries in the old posts and service clubs as well as smaller libraries in hospitals, in company day rooms, outpost stations, antiaircraft batteries and on board transports, and library service is being provided even in combat zones.

The librarians report that new fiction and textbooks on mathematics and radio head the list of "best readers." Camp preferences naturally differ; the Sixth Corps Area (Illinois, Michigan and Wisconsin) likes western novels and Shakespeare's plays. Books on the war are not popular, although at Fort Ord, Calif., Mr. Churchill's "Blood, Sweat and Tears" and "Berlin Diary" are much read.

The primary purpose of camp libraries is to provide recreational reading of fiction; however, there is a growing demand for subject books, histories and biographies. The announcement states that the average soldier in the United States Army is more highly educated than in any other army. Many of the five hundred and sixty-nine thousand volumes in army libraries when the emergency was proclaimed, which were worn out or obsolete, have been discarded and replaced by new books.

BUNDLES FOR BRITAIN

Physicians, hospitals and manufacturers contributed the nearly five thousand used and new surgical instruments and apparatus which were recently shipped to England for distribution to hospitals, Bundles for Britain, Inc., 475 Fifth Avenue, New York, announced on February 24. Equipment which was not in good condition for immediate use when received was reconditioned at the warehouse in New York or by dealers or manufacturers before being packed. The largest single lot in this shipment comprised five hundred and sixty operating instruments for general and special surgical operations and more than six hundred dental instruments; also more than a million tablets of various medicaments. The shipment for insurance purposes was valued at $10,000 and was made through the American Red Cross.

DRIED BLOOD PLASMA

The Surgeon General of the Army has submitted for publication the following circular letter:

CIRCULAR LETTER NO. 29 (SUPPLY NO. 12)

1. Dried blood plasma is being added to the medical department supply catalogue as standard item 16089 serum, normal human plasma, dried. This dried blood plasma is processed by certain selected manufacturers from blood donated to the American Red Cross. Sources of supply are such that, pending further instructions, this item will be furnished to the following installations only:

(*a*) All task, base and overseas forces.
(*b*) U. S. Army transports.

2. This item will not be furnished stations within the continental limits of the United States.

3. Liquid plasma centers now in the process of establishment will furnish liquid human plasma for stations within the continental United States. When this liquid plasma is generally available, policies concerning its distribution will be issued from this office by circular letter.

By order of the Surgeon General:

JOHN A. ROGERS,
Colonel, Medical Corps,
Executive Officer.

STATE HOSPITAL OFFICER

The Medical Division of the Office of Civilian Defense has recommended the appointment of a state hospital officer as an official of Emergency Medical Service, particularly in the first, second, third, fourth, eighth and ninth defense regions. The principal function of the hospital officer will be to plan for emergency base hospitals for receiving civilian casualties and other hospital evacuees. His duties will be:

1. To survey the hospitals throughout the state (excluding those in the exposed cities) to determine how many beds can be put into immediate use in emergency with existing kitchen, laundry, sanitation and other engineering facilities. (*a*) by clearing patients to their homes, (*b*) by restricting admissions, (*c*) by use of rooms not normally used for patients, (*d*) by rehousing medical and nursing staff and other hospital personnel outside the hospital, (*e*) by use of neighboring buildings (schools, hotels) for patients (or staff), (*f*) by extra bed accommodation in temporary structures erected on available grounds adjacent to the hospital.

2. To assist in designating for each casualty hospital or group of hospitals in each exposed city (*a*) the line of evacuation to the base, (*b*) the transport arrangements, (*c*) the emergency base hospitals provisionally allotted to each casualty unit.

3. To keep constantly informed of the bed state of every hospital in his area by weekly returns.

4. To advise the Office of Civilian Defense, through the regional medical officer, on the need for providing additional accommodations, e. g. by temporary construction or by converting convalescent homes, hotels, school dormitories or other structures into hospitals.

5. To report to the regional medical officer of the Office of Civilian Defense any exceptional conditions requiring action (e. g. beyond state boundaries or required by the needs of the military situation) and to forward to him copies of a monthly summary report on the state's emergency hospital program. When a hospital outside a state boundary is readily accessible for the reception of casualties from an exposed city, this fact should also be noted.

6. To maintain constant touch with the other service departments of the state defense council (e. g. evacuation).

7. To supervise the distribution of medical and hospital supplies under the direction of the state civilian defense property officer and report any threatened deficiency to the regional medical officer.

8. To supervise staff arrangements for emergency base hospitals and for reception areas.

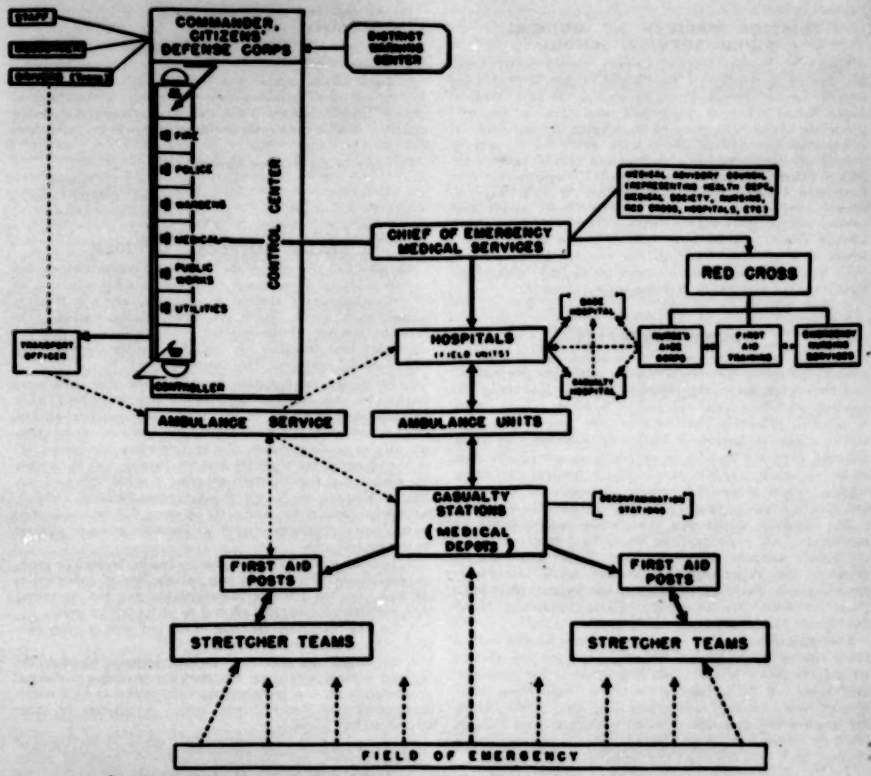
9. To control movements of medical and nursing staff as well as of casualties in any situation affecting emergency base hospitals.

ORGANIZATION OF EMERGENCY MEDICAL SERVICES IN CIVILIAN DEFENSE

Here is the latest design that has been drawn to indicate the organization of medical services for civilian defense. The head of the service is the chief of Emergency Medical Services, who receives his notification directly from the medical representative in the control center. The chief is aided by a medical advisory council, and the Red Cross in time of emergency operates under the chief of Emergency Medical Services as far as concerns the medical aspects of its work and in direct contact with the medical services established in the field of civilian defense.

RED CROSS DISASTER RELIEF SQUADRONS

Red Cross chapters throughout the United States are organizing disaster relief squadrons, using either privately owned equipment or newly designed mobile units for immediate service in event of a bombing or disaster of any kind. Each squadron is to be equipped with sixteen station wagons, tents, trailers, cots, stretchers and first aid and emergency equipment. New mobile canteens, approved by the WPB, will be available within six weeks. The squadrons are patterned after those of the Boston chapter, first to complete its disaster setup.



Organization of local Emergency Medical Services: solid line, line of authority; broken line, line of service.

LECTURES ON WAR EMERGENCIES

The Passaic County (N. J.) Medical Society opened a special course on war emergencies of lectures for physicians and dentists, February 6, with a lecture on "Plan of Emergency Medical Service; Fractures and Traction Splint." The entire group comprised the following topics:

Shock and Hemorrhage, February 13.
Treatment of Burns, February 20.
Blast Lung; Blast Injuries; Methods of Resuscitation, February 27.
War Gases; Germ Warfare, March 6.

The lectures were given at each of the six hospitals in Paterson and Passaic: Paterson General, St. Joseph's and Nathan and Miriam Barnert hospitals, Paterson, and Passaic General, St. Mary's and Beth Israel hospitals in Passaic. The lecturers were chosen from the hospital staffs.

SAFETY MEASURES AT WAYNE UNIVERSITY

To insure the safety of students and faculty members at Wayne University, Detroit, in an event of a major emergency the Faculty Advisory Committee on War Related Activities has issued a booklet entitled "The Protection of Wayne University Personnel During the War Emergency." Air raid drills are conducted and at various places first aid stations established and stocked with supplies, cots, blankets and stretchers.

ASSISTANTS TO FLIGHT SURGEONS

A class of enlisted men began a six weeks course of instruction, March 2, at a school of aviation medicine to qualify as flight surgeons' assistants.

ORGANIZATION SECTION

MEDICAL LEGISLATION

STATE MEDICAL LEGISLATION

New Jersey

Bills Introduced.—S. 217 proposes to require every physician, within one week after making a diagnosis of cancer or other malignant tumor under his care, to report the facts to the state department of health. A similar report must be made by the pathologist in any laboratory to which has been submitted a tissue specimen which after examination discloses the existence of these conditions. A similar report must be made by the person in charge of any hospital, clinic, dispensary, nursing home or other similar public or private institution of every case of cancer, malignant tumor or malignant disease of the blood, and lymphatic systems in a patient receiving care or hospitalization at the institution. A. 238, to supplement the medical practice act, proposes to require every person licensed to practice medicine and surgery, or any branch thereof, to register annually with the secretary of the licensing board on or before July 1 and at that time to pay a registration fee of $3.

New York

Bills Introduced.—S. 1729 proposes to enact a separate chiropractic practice act and to create an independent board of chiropractic examiners to examine and license applicants for licenses to practice chiropractic. The bill proposes to define chiropractic as "the science of locating and the removing of nerve interference in the human body, where such interference is the result of or caused by misalignment or subluxations of the vertebral column. It excludes operative surgery, the reduction of fractures, the prescription or use of drugs or medicine, and the practice of obstetrics." A. 2093, to amend the provisions of the law relating to physiotherapy, proposes to define physiotherapy as "the use of actinotherapy, hydrotherapy, mechanotherapy, thermotherapy, and electrotherapy, exclusive of the x-ray, *including necessary examinations to determine existing conditions that could be treated thereunder.*" Under the present law the definition of physiotherapy is as just stated, excluding the language in italics.

MEDICAL ECONOMIC ABSTRACTS

COLORADO MEDICAL SERVICE READY

The trustees of the Colorado Medical Service, Inc., through its chairman, Dr. J. W. Amesse, announces in the *Denver Medical Bulletin* for February that the organization of the service has been completed and that it will begin operation in the near future. The preliminary work has been greatly assisted by the Colorado Hospital Association. Nearly three hundred members in the state and county societies of Denver have expressed, over their signatures, a desire to see the medical service plan put into execution. The approval of more than 50 per cent of the active membership indicates that the society as a whole wishes to cooperate in a thorough trial of the plan.

MEDICAL PRACTICE IN CHILDREN'S BUREAU

The extent to which the Children's Bureau, operating under the Social Security Act in the administration of the State Matching Funds section, is concerned in the practice of medicine is strikingly evident in the budget for the fiscal year ending June 30, 1942. The total budget covers the following items:

Purpose of Proposed Expenditures

	Amount *
Total budgeted	$10,921,682.21
For professional personnel	8,336,041.32
For nonprofessional personnel (including merit-system employees)	1,028,253.10
For postgraduate education	384,117.52
For hospital care	319,496.66
For other purposes	853,693.61

* Annual budgets and supplemental budgets approved up to Sept. 3, 1941; fifty-one states (the term "state" includes Alaska, Hawaii, District of Columbia and Puerto Rico).

The importance of the medical element in the work of the bureau becomes evident when these items are further broken down. The expenditures for medical personnel, which amount to $2,027,041.32, are divided into $1,396,312.02 for full time and $619,355.89 for part time physicians. A total of $639,062.28 is assigned to dental personnel, of which $466,566 goes to full time and $172,496.28 to part time dentists.

The largest single item in the budget, $5,214,716.86, is expended for the employment of nurses. Other items with the amounts appropriated are:

For nutrition personnel	$249,663.50
For health education personnel	160,434.66
For social work personnel	44,852.00
Postgraduate education	384,117.52

MEDICAL SERVICE ASSOCIATION IN PENNSYLVANIA

The annual report of the Medical Service Association of Pennsylvania covering fifteen months of operation appears in the *Pennsylvania Medical Journal* (**48**:433 [Feb.] 1942). This shows assets and liabilities at $35,700.78 and a balance on hand of $7,067.45. Subscribers had increased from 972 on Dec. 31, 1940 to 7,163 one year later. A year ago there were only five small groups and today there are twenty-three groups, some of which are of considerable size.

"This rate of growth is not only healthy," says the report, "but one which may prove to be most advantageous to the association. If the rate were much slower, the volume would be so small that a disproportionate share of income would have to be devoted to the costs of administration. On the other hand, when an organization is traveling uncharted seas as the Medical Service Association is, speed—while it might accomplish certain purposes—certainly increases the possibilities of disaster."

While no attempt has been made to enroll participating physicians except in localities in which there are subscribers, the number of participating physicians has increased through the year from 171 to 226. Physicians have received payments for 466 claims totaling $13,925. For twelve months out of fifteen a unit value of $2 has been maintained. A large number of tonsillectomies last summer made it necessary to reduce the unit to $0.80 for June and $1 for July and August. A debit balance of $5,242 is carried on the books of the association in favor of the physicians to whom this reduced value of the unit was paid with the expectation that, as the plan grows, it may be possible to make full payment on these accounts. The percentage of the total income applied to administrative costs has fallen quite rapidly, and in the fifth quarter during which the plan was in operation it amounted to 22.8 per cent of the income.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education and public health.)

CALIFORNIA

Government Finances Research.—Grants totaling nearly two million dollars have been allocated to the University of California, Berkeley, by the United States government for research to further the war effort. All the work is to be of a confidential nature.

Graduates After Accelerated Courses Eligible for Licensure.—The secretary of the board of medical examiners reports that the attorney general of California has advised him that he may accept for licensure applicants who have graduated from an accelerated medical course. The attorney general pointed out that the medical practice act requires that an applicant must have attended four resident courses of instruction, each consisting of not less than thirty-two weeks with a total of four thousand hours of instruction, but such courses need not be pursued continuously or consecutively. The regulation of the time, if any, elapsing between resident courses of instruction, the attorney general said, is a matter to be handled by each approved school.

Annual Heart Meeting.—The California Heart Association will hold its annual meeting at the Hotel Del Monte, May 3. Dr. Wallace M. Yater, professor of medicine, Georgetown University School of Medicine, Washington, D. C., will be the guest speaker. Other speakers will include:

Drs. James H. Thompson, Francis L. Chamberlain and William J. Kerr, San Francisco, Auricular Flutter in Childhood.
Dr. Lewis T. Bullock, Los Angeles, The Importance of Age in the Relative Frequency of Various Congenital Cardiac Lesions.
Dr. Morris B. Nathanson, Los Angeles, Observations on the Rhythmic Property of the Human Heart.
Dr. Arthur Selzer, San Francisco, Study of the Circulation in Acute Myocardial Infarction.
Dr. Walter Beckh, San Francisco, A Revaluation of the Serologic Status in Syphilitic Heart Disease.

A number of papers are devoted to electrocardiographic studies. Dr. John Martin Askey, Los Angeles, will present a report on "Carotid Sinus Sensitivity Accidents."

DELAWARE

Dr. Speer Returns as Secretary to State Society.—Dr. William H. Speer, Wilmington, has again been appointed secretary of the Medical Society of Delaware to fill the vacancy that occurred when Dr. Charles Leith Munson went into army service. Dr. Speer previously served as secretary from 1934 to 1937.

DISTRICT OF COLUMBIA

Director of Venereal Disease Unit.—Dr. William E. Graham, formerly with the U. S. Public Health Service, has been appointed director of the division of venereal diseases of the District health department, effective February 5. He graduated at Rush Medical College, University of Chicago, Chicago, in 1932.

Physician Arrested on Narcotic Charge.—Dr. Laurence M. Hynson, Washington, and Mrs. Janie Mae Jacobs were arrested, January 10, and accused of violations of the Harrison Narcotic Act, according to the Washington *Star*. The physician was accused of writing prescriptions for more than 9,000 grains of narcotics in a year for persons not under his direct professional care. The woman was named as a "contact" who procured "patients." The physician, up to March 9, was still in jail because he was unable to produce the $2,500 bail, it was said.

Prizes for Research.—The Medical Society of the District of Columbia has announced the winners in its first contest to promote postgraduate medical research, newspapers reported on March 26. First prize went to Dr. Roy G. Klepser, assistant resident in surgery at Gallinger Municipal Hospital, for his work on "Problems in the Local Use of Sulfonamides." Second prize to Dr. Ben D. Chinn, medical officer at St. Elizabeths Hospital, for his paper on "Influence of the Bacterial Flora on the Cultivation of Endameba Histolytica." Dr. Irving B. Brick won third prize for his work on "Influenzal Meningitis: Evaluation of Treatment and the Use of Sulfadiazine."

Work for Women.—A meeting was held at the Hotel Mayflower in Washington, March 20-21, under the auspices of the Institute for Women's Professional Relations to discuss opportunities in a wartime world for girls who have enjoyed training in specific types of work, according to the New York *Times*. Among the speakers were Dr. Warren F. Draper, assistant surgeon general, U. S. Public Health Service; Dr. Sara M. Jordan, Boston, chairman of the Women's Committee on Defense Assignment and Procurement of the American Medical Association, and Helen S. Mitchell, Ph.D., chief nutritionist, Office of Defense Health and Welfare Service.

GEORGIA

Memorial to Physicians.—Crystal chandeliers have been presented to the Fulton County Medical Society as memorials to the late Dr. Edward C. Davis and the late Dr. Stewart R. Roberts. The one in memory of Dr. Davis came from one of the old homes of Philadelphia. The chandelier in memory of Dr. Roberts is a ten light fixture of Waterford crystal made in 1775. It was formerly the property of Duke De Abernon, removed from Esher Palace, Esher Surrey, England. Friends and colleagues of both physicians donated the memorials. Dr. Davis was president of the county medical society in 1928 and Dr. Roberts in 1915. The Fulton County Medical Society has a committee on memorials which as time goes on is to decide on suitable memorials to honor its members.

University News.—The University of Georgia School of Medicine, Augusta, has received a grant of $4,350 for continuation of researches in the venereal diseases under the direction of Dr. Robert B. Greenblatt, professor and head of the department of experimental medicine. Another grant of $2,000 was received for continuation of the work in nutrition by Dr. Virgil P. W. Sydenstricker, professor of medicine, and his staff. Recent lecturers at the school of medicine include Drs. James Dellinger Barney, Boston, on "A Consideration of Some of the Problems of Renal Stones" and Leopold Clarence Cohn, Baltimore, "Carcinoma of the Female Breast." The former Wilhenford Hospital for Women and Children at the university has been converted into a tuberculosis hospital and was occupied on February 1. Its capacity is sixty beds. Dr. Lucius N. Dodd, professor of tuberculosis, is in charge. Robert H. Shuler, Ph.D., formerly of the University of Chicago, has been appointed assistant professor of physiology at the school of medicine, Augusta.

ILLINOIS

Increase in Diphtheria.—The state department of health has announced a 10 per cent increase in diphtheria over last year and asks the cooperation of local health officers to augment their local programs of control. Up to April 1, 302 cases had been reported in Illinois this year.

Conference on Delinquency Prevention.—Governor Green has called a three day conference on delinquency prevention at the LaSalle Hotel, Chicago, April 20-22. The theme of the conference will be "Onward with Youth to Good Citizenship" and will be participated in by youth leaders from Illinois and surrounding states.

Survey to Determine Hospital Facilities.—A survey of all hospital facilities in Illinois was started on March 26 to determine the number of hospitals, bed capacities, and possibilities for expansion and to list additional buildings which may be used for temporary hospitals, newspapers announce. The work is under the direction of Dr. Herbert L. Pettitt, Morrison, emergency service medical coordinator for the Illinois Council of Defense.

Welfare Group Reorganized.—The Illinois Conference on Social Welfare recently adopted a new constitution and changed its name to the Illinois Welfare Association. As a part of its reorganization, the association has appointed Mr. Bernard A. Roloff, Chicago, executive secretary. Mr. Roloff for two years had been serving as director of public information of the Illinois Children's Home and Aid Society. The new offices of the association are at 225½ South Fourth Street, Springfield.

Chicago

The Hedblom Lecture.—Dr. Stuart W. Harrington, Rochester, Minn., professor of surgery, University of Minnesota Graduate School, Minneapolis, will give the fifth annual Hedblom Memorial Lecture at the University of Illinois College of Medicine, April 29, on "Diagnosis and Surgical Treatment of Intrathoracic Tumors." The lecture is sponsored by Iota chapter of Phi Beta Pi Fraternity.

Public Meeting on Cancer.—The Northwest and Irving Park branches of the Chicago Medical Society sponsored a public meeting on March 20 for the consideration of cancer. Dr. David E. W. Wenstrand, Milwaukee, medical director, Northwestern Mutual Life Insurance Company, discussed "The Prevalence of Cancer" and Dr. Arthur C. Christie, professor of clinical radiology, Georgetown University School of Medicine, Washington, D. C., "What Is Being Done to Control Cancer." Dr. Benjamin H. Orndoff, clinical professor of radiology, Loyola University School of Medicine, discussed the papers.

Competition for the Capps Prize.—The Institute of Medicine of Chicago announces that competition is now open for its annual Joseph A. Capps Prize for medical research for "the most meritorious investigation in medicine or in the specialties of medicine." The investigation may also be in the fundamental sciences, provided the work has a definite bearing on some medical problem. Competition is open to graduates of approved Chicago medical schools who completed their internship or one year in laboratory work in 1940 or thereafter. Manuscripts must be submitted to the secretary of the Institute of Medicine of Chicago, 86 East Randolph Street, not later than Dec. 31, 1942.

INDIANA

New Head of Dermatology Department.—Dr. Frank M. Gastineau, Indianapolis, has been appointed head of the department of dermatology and syphilology at the Indiana University School of Medicine, Indianapolis, succeeding Dr. Paul Cregor, who retired. Dr. Gastineau was born in Indianapolis and graduated at the medical school in 1918.

Changes in Health Personnel.—Dr. Richard P. Good has been appointed a member of the Kokomo city board of health. ——Dr. Palmer O. Eicher, Decatur, has been named health officer of Adams County.——Dr. Carl B. McCord, Veedersburg, is the new health officer in Fountain County.——Dr. Charles F. Abell, Marion, has been named city health officer.——Dr. William E. Jenkinson, Mount Vernon, has been appointed in charge of the Posey County health unit, and Dr. William Robert Tipton, Greencastle, in charge of the unit in Putnam County. —— Dr. Harley F. Flannigan, Lagrange, has been appointed health commissioner for Lagrange County.

KANSAS

Dr. Porter Resigns as Secretary of State Society.—Dr. John M. Porter, Concordia, who was called to active duty in the U. S. Navy on March 6, has resigned as secretary of the Kansas Medical Society. He was elected to the office in May 1939. Dr. Porter was commissioned lieutenant commander in the navy.

Society News.—A joint meeting of the Kansas Obstetrical and Gynecological Society was addressed in Dodge City, March 20, by Dr. William F. Mengert, Iowa City, on "Consideration of Dystocia and of Practical Methods of Estimating Pelvic Capacity."——The Ford County Medical Society and the Kansas Obstetrical and Gynecological Society was addressed in Dodge City, March 20, by Dr. William F. Mengert, Iowa City, on "A Consideration of Dystocia and of Practical Methods of Estimating Pelvis Capacity."——The Wyandotte County Medical Society was addressed, March 3, by Drs. John A. Billingsley on "Aniseikonia" and Harold V. Holter, "Uses and Abuses of Ovarian Hormones." Both are from Kansas City.

MARYLAND

Graduate Week in Medical History.—The Institute of the History of Medicine, Johns Hopkins University School of Medicine, Baltimore, will hold its third "graduate week in medical history," April 27-May 2, on the theme "Contributions of Greece and Rome to Medicine." The course will consist of lectures, seminars, demonstrations, exhibits and discussions. Dr. Henry E. Sigerist, William H. Welch professor of the history of medicine, and director of the institute of medicine, will deliver the opening address. Other speakers will be:

Dr. Owsei Temkin, A Hippocratic Surgeon's Practice, April 28, and Anatomical Demonstrations in Antiquity, April 30.
I. E. Drabkin, Ph.D., A Medical Student in Alexandria, April 29.
Dr. Alan F. Guttmacher, Soranus Makes a Delivery, May 1.
Henry T. Rowell, Ph.D., Hygiene in Every-Day Roman Life, May 2.

There will be seminars on:

Bibliography of Greek and Roman Medical Literature, Dr. Sigerist, April 27.
The Cult of Asclepius, April 28, and Greek and Latin in Medical Terminology, May 1, Dr. Ludwig Edelstein.
Drug Lore and Drug Trade in Greece and Rome, April 30, G. Raynor Thompson, Ph.D.

There will also be exhibits on Medicine in Greece and Rome, Greco-Roman Medical Literature, New Literature on Medical History, Publications of the Institute of the History of Medicine and Permanent Museum of the Institute of the History of Medicine.

MASSACHUSETTS

Course in Industrial Hygiene.—Harvard University School of Public Health, Boston, will conduct a course in industrial hygiene, April 27-August 1. The course is open to physicians and engineers who desire training in this field and covers, among other subjects, sanitary parasitology, ecology, industrial ventilation and air conditioning.

Fifteen Years of Cancer Control.—Since a cancer control program was inaugurated fifteen years ago by the commonwealth of Massachusetts, about 14,000 patients with cancer have attended the cancer clinics. A recent report shows that 40 per cent of the patients are still alive. At the end of ten years, 47 per cent of the patients with cancer of the skin were alive, 23.3 per cent with cancer of the mouth, 21.6 per cent with cancer of the uterus and 15.6 per cent with cancer of the breast. The report states that, as ten years after clinic admission the "dying off curve" for clinic patients is almost identical with that of the Massachusetts population, most of these cases may be considered to be cured. In 1940 physicians referred 80.8 per cent of the patients to the clinics as compared with the 20.1 per cent who were referred in the first year of the program. Between 1927 and 1935 there were 421 physicians who used the tumor diagnostic service; in 1940 there were 798. In the same period the number of specimens increased from 2,813 to 3,907. The report also comments on the remarkable change in attitude of the public toward education; in the early days of the program it was difficult to obtain an audience when cancer was under discussion. Today, members of the cooperative cancer control committees number over ten thousand and have little difficulty in arranging for cancer meetings.

In discussing education of the public in the program, the report stated that the delay between the time of the first recognized symptoms of the disease and the time the patient presents himself to a physician is one measure of judging the effectiveness of a program. In the early years of the program the delay averaged 6.5 months. Between 1936 and 1939 it was 5.3 months and in 1940 was 4.6 months. A similar estimate of the effectiveness of education is the percentage of patients with cancer who go to their physicians within the first month of recognized symptoms. In 1940, 21 per cent of the clinic cancer patients went to their physician within the first month of their symptoms as compared with 15 per cent in the early years of the program.

During the period of the cancer program the actual number of deaths has increased annually by about 2 per cent; the clinic attendance of cancer patients has increased annually about 11 per cent, the number of specimens sent to the diagnostic laboratories about 4.5 per cent, and the admissions to general hospitals about 5 per cent. In 1932, 31.1 per cent of the fatal cases had never been treated in a cancer hospital; in 1940 this figure was 15.8 per cent, indicating that hospitalization for cancer is increasing far more rapidly than the cases of the disease. The report states that the attendance of new cancer patients at the state aided clinics has increased five times as fast as the deaths; only about 8 per cent of the cancer population are seen in the clinics. The other 92 per cent make use of other facilities for diagnosis.

MINNESOTA

Pioneer Veterinarian Retires.—Charles E. Cotton, D.V.M., state pioneer of the bovine tuberculosis campaign, has retired after twenty-two years as executive officer and secretary of the Minnesota State Livestock Sanitary Board. The first tuberculin testing of cattle in Minnesota in 1894 is attributed to Dr. Cotton. Through his efforts and those of the Minneapolis Board of Trade, the legislature was induced to pass a law permitting cities to regulate the production and distribution of milk within their limits. In 1903 when the state livestock sanitary board was established, Dr. Cotton was named a member and in 1918 was chosen head of the board.

Course for Physicians on Kenny Method.—The first continuation course for physicians dealing especially with the Kenny technic for infantile paralysis was completed at the University of Minnesota Center for Continuation Study on April 2. Physicians taking the course included Earl C. Elkins, Rochester; William J. Gardiner, Toronto, Canada; Hyman M. Ginsburg, Fresno, Calif; Frances A. Hellebrandt, Madison, Wis.; Frank H. Krusen, Rochester; William H. Northway,

San Francisco; Malvin J. Nydahl, Minneapolis; Arthur L. Watkins, Boston, and Bertha W. Weinmann, Chicago. The course occupied a week and included studies of the pathology and general care of infantile paralysis as well as special demonstrations in the Kenny method.

NEW JERSEY

State Medical Meeting in Atlantic City.—The one hundred and seventy-sixth annual convention of the Medical Society of New Jersey will be held at Haddon Hall, Atlantic City, April 21-23, under the presidency of Dr. Thomas K. Lewis, Camden. The speakers will include:

Dr. John S. Lockwood, Philadelphia, Chemotherapy Under War Time Conditions.
Dr. Ralph C. Williams, U. S. Public Health Service, Washington, D. C., Public Health in Time of War.
Dr. Joseph A. Bell, passed assistant surgeon, U. S. Public Health Service, Washington, D. C., Epidemiology in War Time.
Dr. Frederick R. Hook, captain, M. C., U. S. Navy, Bethesda, Md., Chemotherapy in War Time Surgery.
Dr. George M. Dorrance, Philadelphia, Plastic Surgery in War Time.
Dr. Frank C. Yeomans, New York, Stricture of the Rectum.
Drs. Bernard A. Hirschfeld, Trenton, and Anthony S. Tornay and Joseph C. Yaskin, Philadelphia, Spontaneous Subarachnoid Hemorrhage.
Dr. Meredith F. Campbell, New York, Abdominal Symptoms of Urologic Origin in Children.

One luncheon session will be addressed by Dr. Thaddeus L. Montgomery, Philadelphia, on "Management of the Infertile Pregnant Patient." One panel discussion on acute conditions of the abdomen in infancy will be presented by Drs. Edward J. Donovan, New York, Edward W. Sprague, Newark, and Irvin E. Deibert, Camden. The program also includes a series of scientific motion pictures. The fifteenth session of the woman's auxiliary to the state medical society will be held April 21-23.

NEW YORK

State Medical Meeting in New York.—The Medical Society of the State of New York will hold its annual meeting at the Waldorf-Astoria, New York, April 27-30, under the presidency of Dr. Samuel J. Kopetzky, New York. Included among the speakers will be:

Dr. William P. Wherry, Omaha, Relations of Faulty Dentition to Deafness.
Major General James C. Magee, Washington, D. C., Transition of Civilian Doctors to Medical Officers of the Army.
Col. Leonard G. Rowntree, Washington, Lessons Learned from Physical Examinations of Registrants.
Dr. George Baehr, Washington, The Physician's Role in the Civilian Defense Program.
Dr. Henry G. Barbour, New Haven, Conn., Movements of Body Water in Relation to Anesthesia.
Dr. Martin S. Kleckner, Allentown, Pa., Significance and Interpretation of the Diarrheas Encountered in Proctologic Practice.
Dr. Jacob Arnold Bargen, Rochester, Minn., Chemotherapy in the Digestive System.
Dr. Louis Schwartz, Bethesda, Md., Protective Methods for the Prevention of Industrial Dermatoses.
Dr. Sumner L. S. Koch, Chicago, Tendon and Nerve Injuries.
Dr. Norman F. Miller, Ann Arbor, Surgery of the Ovary.
Dr. Virgil G. Casten, Boston, Common Motor Anomalies and Their Treatment.
Dr. Walter I. Lillie, Philadelphia, A Treatment for Herpes Zoster Ophthalmicus.
Dr. Francis L. Lederer, Chicago, Otosurgical Deficiencies.
Dr. Allen F. Voshell, Baltimore, Mechanics of the Knee Joint.
Dr. Philip Levine, Newark, N. J., The Pathogenesis of Erythroblastosis Fetalis.
Dr. Henry R. O'Brien, Hartford, Conn., Factors in Obstetrical Care: Report of a Rural Study.
Dr. Herrman L. Blumgart, Boston, Management of Cardiac Patients Who Require Surgery.
Dr. Howard F. Root, Boston, Medical Aspects of Diabetic Surgery.
Dr. James C. McClelland, Toronto, Canada, Relationship of Tuberculosis to Trauma.
Dr. Walter B. Mount, Montclair, N. J., Alexander Anderson, M.D., 1775-1870, The First Wood Engraver in America.
Drs. Roy B. Henline, New York, and William P. Yunck Jr., Jersey City, N. J., Scrotal Infections: Their Relationship to Trauma and Compensation.
Drs. Louis M. Orr and Palmer R. Kundert, Orlando, Fla., Late Results Following Transurethral Prostatic Resection.
Dr. Charles B. Huggins, Chicago, Endocrine Relationships of Prostatic Cancer.
Dr. William G. Leaman Jr., Philadelphia, Physical Therapy in Heart Disease.
Dr. Wilson de Rezende, Rio de Janeiro, Experiments with "Glue Suture" in Repair of Nerve Injury: Description of Technic and Results.
Miss Elizabeth Kenny, formerly of Australia and recently of Minneapolis, The Technic of the Kenny Treatment of Acute Poliomyelitis.

The program will be divided into general sessions, sectional meetings and symposiums, including one on diseases of the chest, in which Dr. Edgar Mayer, assistant professor of clinical medicine, Cornell University Medical College, will deliver the fourth A. Walter Suiter Lecture on "Advances in Tuberculosis of Importance to the General Practitioner."

New York City

Personal.—Dr. Julius Hass, who formerly occupied the chair in orthopedic surgery at the University of Vienna, has been appointed attending orthopedic surgeon, in charge of the Orthopedic Service, at Montefiore Hospital.

Meeting on Anesthesia.—The regular session of the American Society of Anesthetists, Inc., was held at the Squibb Auditorium, April 9. The speakers included Dr. Henry K. U. Beecher, Boston, on "Possibilities and Limitations of Barbiturates in Anesthesia as Suggested by Experimental Work"; Dr. Frederick M. Allen, "Refrigeration Anesthesia for Limb Operation"; Dr. Samuel A. Thompson, "Asphyxial Resuscitation: The Phenomenon and Its Mechanism," and Dr. George L. Birnbaum, "Comparison of Methods of Resuscitation."

Interest in Healthmobile.—The Brooklyn Tuberculosis and Health Association reports that in the first forty-seven days that the healthmobile was open to the public 37,788 persons, chiefly adults, viewed the fifty-one dioramas, an average of 804 daily. During the eleven days it was shown in the Brooklyn Navy Yard 10,563 civilian employees and enlisted men viewed the exhibit. It is planned to show the healthmobile as a part of the scientific exhibit at the annual meeting of the National Tuberculosis Association in Philadelphia May 4-9.

Report of Museum of Health.—Plans are under consideration to establish the American Museum of Health in a wing of the American Museum of Natural History, New York, according to a report of the museum's activities of the past year. More than three hundred thousand people have seen the museum's exhibits since the close of the fair in 1940. Through its exhibit loan program, museum materials were displayed by fourteen organizations in twelve cities in the past year. The report also announces the forthcoming publication of the first report on the Visitor Reaction Study conducted by the museum and the U. S. Public Health Service, under a grant of the Carnegie Corporation, New York, entitled "What the Public Knows About Health" comprising a compilation of the results of the health knowledge tests given at the New York World's Fair and the San Francisco Golden Gate Exposition. Recently elected members of the board of directors include John A. Marcuse, Basil O'Connor, New York, and Edwin A. Salmon. Mr. O'Connor was elected treasurer of the museum. Plans are now going forward to hold a meeting of the American Museum of Health on April 27.

NORTH CAROLINA

Internships and the Accelerated Program.—In order to cooperate with the accelerated medical school program, the Duke Hospital internships of twelve months in the various services will commence on July 1, 1942, April 1, 1943, Jan. 1, 1944, Oct. 1, 1944 and July 1, 1945. This schedule will provide an overlapping in internships for a period of three months, during which the preceding group will be senior interns. Applications should be sent to the superintendent six months before these dates.

PENNSYLVANIA

Meeting of Ophthalmologists.—A joint meeting of the Wilkes-Barre, Southern Anthracite and Reading Eye, Ear, Nose and Throat societies will be held at the Schuylkill Country Club near Pottsville, April 29, with a view to forming the Eastern Pennsylvania Association of Eye, Ear, Nose and Throat societies. The following scientific program has been arranged:

Dr. Benjamin F. Souders, Reading, Ocular Absorption of Certain Sulfonamides.
Dr. Thomas R. Gagion, Pittston, Ocular Signs of Myasthenia Gravis and the Prostigmine Test.
Dr. Horace J. Williams, Philadelphia, Ménière's Disease.
Dr. Douglas MacFarlan, Philadelphia, Deafness.
Dr. Algernon B. Reese, New York, Practical Ophthalmological Therapeutics.

Dr. Lewis T. Buckman, Wilkes-Barre, is temporary chairman of the proposed group and Dr. James E. Landis, Reading, temporary secretary.

Philadelphia

De Schweinitz Memorial Library.—Plans are under way to equip a library in the University Hospital in honor of the late Dr. George E. de Schweinitz, professor emeritus of ophthalmology, University of Pennsylvania School of Medicine. Friends of Dr. de Schweinitz have undertaken to finance the project. Any one wishing to contribute may address Mr. Edmund R. Purves, chairman of the committee, at the University Hospital.

Dr. Ruth Weaver Succeeds Dr. Martha Tracy.—Dr. Ruth Hartley Weaver, registrar of vital statistics of Philadelphia, has been appointed assistant director of health to succeed the late Dr. Martha Tracy. Dr. Weaver graduated at Woman's Medical College of Pennsylvania in 1917 and was an instructor in surgery there from 1919 to 1925. She has served as epidemiologist of the city department of health and is at present assistant professor of epidemiology and vital statistics, Temple University School of Medicine.

RHODE ISLAND

Health Institute.—The twelfth New England Health Institute will be held at the Biltmore Hotel, Providence, April 21-23. Dr. Thomas Parran, Washington, D. C., surgeon general, U. S. Public Health Service, will give the principal address, and Mark D. Elliot, D.D.S., Boston, will address a luncheon meeting of the Rhode Island Nutrition Association and the Rhode Island Dental Society on "Nutrition and Dental Health."

WASHINGTON

Medical Round Table of the Air.—Station KIRO, Seattle, and the King County Medical Society are cooperating in a weekly program entitled "Medical Round Table of the Air." The series opened on April 9 and featured a panel of physicians to discuss medical developments of current interests particularly from the standard of their effects on physical fitness. A question of the week will be chosen from among those received from listeners. The names of the physicians are not mentioned on the broadcast nor in any of the general public releases.

PUERTO RICO

Report of School of Tropical Medicine.—A report has been issued concerning the activities of the School of Tropical Medicine, San Juan. Teaching started in the department of public health on Feb. 17, 1941. This department will confine its work to the training personnel for administrative and field duties within the Insular Health Department. A sum of $65,000 had been apportioned under the National Security Act to maintain an educational program under the direction of this department. The library, which was expanded, was moved into a new building at the close of the calendar year.

Legislative action of May 1, 1940 set aside the University Hospital as a diagnostic and research unit, cooperating with the district hospitals of the Insular Health Department in the study and investigation of tropical diseases. During the year ended June 30, 1941 the hospital admitted 688 patients for medical attention. Forty children were treated in the children's ward, recently opened through the gift of $2,000 of the Rotary Club of San Juan. A total of 16,998 outpatients were treated. Of the two hundred and fifteen operations performed, one hundred and one were on charity patients; one hundred and forty-one blood transfusions were given. The report treats the many problems of research carried on in the various departments of the schools, bringing the many activities up to date.

Dr. George W. Bachman, director of the School of Tropical Medicine, recommends that the school be given a permanent operating budget; this lack he says explains why no promotions have been extended to the full time faculty members. The school has grown from an organization which could be supported on a yearly budget of $30,500 in 1926 to one that now requires an annual maintenance appropriation of $276,747.

GENERAL

Meeting of Psychoanalysis Association.—The meeting of the Association for the Advancement of Psychoanalysis will be held at the Copley-Plaza Hotel, Boston, May 19. The morning session will be devoted to a panel discussion on human destructiveness. The speakers at the afternoon session will include the following New York physicians:

Dr. William V. Silverberg, Psychoanalysis, Religion and World Crisis.
Dr. Bernard S. Robbins, Evolution of the Neurotic Present from the Traumatic Past.
Dr. Karen Horney, The Role of Unconscious Arrogance in Neurosis.
Dr. Judah Marmor, The Role of Instincts in Human Behavior.
Dr. Clara M. Thompson, What Is Penis Envy?

Annals of Surgery to Appear in Spanish.—Beginning with the June issue, *Annals of Surgery* will henceforth appear also in a Spanish edition. This arrangement was a result of negotiations of the Coordinator on Inter-American Affairs. Mr. Lewis Hanke, director of the Hispanic Foundation, Guillermo Kraft Company, one of the oldest publishing firms in Buenos Aires, will translate the *Annals of Surgery* each month for South American physicians and surgeons. The editorial board of the journal, of which Dr. Walter E. Lee, Philadelphia, is chairman, will cooperate with Latin American physicians in the new project.

Association for the Study of Neoplastic Diseases.—The spring meeting of the American Association for the Study of Neoplastic Diseases will be held in the Bowman Gray School of Medicine, Wake Forest College School of Medical Sciences, Winston-Salem, N. C., April 23-25. The Robert E. Lee Hotel, Winston-Salem, will be the headquarters. The following subjects will be covered: tumors of the soft parts and miscellaneous tumors, intrathoracic tumors, tumors of bone, tumors of the female generative organs, tumors of the breast and tumors of the gastrointestinal tract. The summer meeting of the association will be held at the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, June 25-27, with Dr. Grant E. Ward, Baltimore, in charge.

American Federation for Clinical Research.—The first annual meeting of the American Federation for Clinical Research will be held at the Center for Continuation Study, University of Minnesota, Minneapolis, April 20-21. Among the speakers will be:

Drs. Henry N. Harkins and Conrad R. Lam, Detroit, Quantitative Studies on Plasma Therapy in Severe Burns.
Dr. Edward C. Reifenstein Jr., Syracuse, N. Y., The Effect of Gonadal Hormones on Senile Osteoporosis.
Drs. Carl G. Morlock and Byron E. Hall, Rochester, Minn., The Association of Hepatic Cirrhosis, Thrombocytopenia and Hemorrhagic Tendency.
Dr. John A. Anderson, Minneapolis, The Antagonism of Adrenal Cortical Extract to Pitressin in Human Diabetes Insipidus.
Dr. Irving Greenfield, Brooklyn, Thrombosis of the Abdominal Aorta.
Drs. Fuller Albright, Patricia H. Smith and Russell Fraser, Boston, Short Stature Associated with Congenital Hypoplasia of the Ovaries.
Dr. Nahum J. Winer, New York, Renal Function in Diabetes Insipidus.
Dr. Willis E. Brown and Violet M. Wilder, Ph.D., Omaha, Response of the Human Uterus to Adrenalin.

Five Day Cure for Gonorrhea.—For the first time, a five day cure for gonorrhea has been perfected and proved in large scale tests, Surg. Gen. Thomas Parran of the U. S. Public Health Service announces. Sulfathiazole is now credited with the cure of at least 80 per cent of all gonorrheal infections. Of the remaining 20 per cent, many may be cured by another course of treatment with the same drug or by other special methods. The surgeon general's announcement coincides with the appearance of an article describing the five day treatment in *Venereal Disease Information*, published by the service. Entitled "The Management of Gonorrhea in General Practice," the article was prepared by the executive committee of the American Neisserian Medical Society. Originally developed in the venereal disease research laboratory of the public health service, the cure has been confirmed by tests on thousands of patients in medical centers and is being recommended for routine use by the medical profession.

Meeting of Health Officers.—Dr. Carl V. Reynolds, Raleigh, secretary and state health officer of the North Carolina State Board of Health, was elected president of the State, Territorial and Provincial Health Authorities of North America at the recent meeting in Washington, succeeding Dr. Frederick W. Jackson, deputy minister of health, Winnipeg, Man. Other officers are Drs. Gregoire F. Amyot, provincial health officer, Victoria, B. C., vice president, and Albert J. Chesley, Minneapolis, secretary and executive officer, Minnesota Department of Health, who was reelected secretary and treasurer for his eighteenth term. Following a meeting with the U. S. Children's Bureau a new organization was formed composed of state and territorial health officers of the United States and its possessions to act as a clearing house on matters of federal import relating to the various states and territories. The regular association had met earlier with the U. S. Public Health Service to hear, among others, addresses by Dr. Thomas Parran, surgeon general of the service, and Paul V. McNutt, administrator, Federal Security Agency, on "Health Agencies, Their Responsibilities and Their Opportunities During the Present Crisis."

Annual Exhibit of Physician's Art Association.—The fifth annual exhibit of the American Physician's Art Association will be held at Atlantic City, N. J., June 8-12. The gallery will be on the main floor of the auditorium. The secretary of the art association, Dr. Francis H. Redewill, has sent entry blanks to members giving details of the kind of art pieces that will be exhibited and how to send them. Dr. Redewill's address during the annual meeting will be the Hotel Claridge, Atlantic City, where all exhibitors should send their pieces express collect to arrive between June 1 and June 6. Through the courtesy of Mead Johnson & Co., Evansville, Ind., there will be no fees for hanging and no express charges

either way. The type of art to be exhibited includes personal work of the following types of medium: oil portraits, oil still life, landscapes, sculpture, water color, pastels, etchings, photography, wood carving, leather tooling, ceramics and tapestries (needle work). All pieces should be sent preferably by railway express collect, automatically covered with $50 insurance. The dues of the American Physician's Art Association after March 1, 1942 are $2. However, those who paid their $1 dues prior to March 1 will be eligible to exhibit. Mead Johnson & Co. has published a book containing photographs of art work done by six hundred physicians, a copy of which will be mailed gratis to every member of the American Physician's Art Association in a short time. Exhibitors should send now for entry blanks to Dr. Redewill in the Flood Building, San Francisco, one of which should be used for each medium in which it is desired to exhibit. There is a charge of $1 for each extra medium. Only two pieces of art are allowed in each type of medium. The prizes offered will include more than fifty trophies, twenty-five medals and six plaques.

FOREIGN

Soviet Doctors Use American Methods.—Dr. B. A. Petrov, chief surgeon of the Black Sea Fleet of the Soviet Union, in an intercontinental news dispatch from Moscow is reported to have said that the application of American surgical technics by Russian doctors are bringing highly gratifying results. Soviet field surgery, he said, now applies a cast directly on the open wound. The favorable action is rapid, makes for rest of the wound and the fracture, facilitates the removal of the patient, and effects tremendous saving in dressing materials. Dr. Petrov stated that 70 per cent of the wounds in naval battles are wounds of the extremities. He referred particularly to the plaster cast technic developed by Dr. H. Winnett Orr of Lincoln, Neb. Dr. Orr's book "Trueta's Treatment of War Wounds and Fractures" is one of a list that Russian doctors have requested.

Dr. Petrov pointed out that burns of the extremities and of the face and body were more frequent in the navy than in the army and "as a basic means of the treatment of such wounds we have adopted the method of the American physician Batman, which has produced excellent results."

Russian War Relief, Inc., 535 Fifth Avenue, New York City, endeavors to supply Soviet medical authorities with information about the latest American medical advances.

Public Health Under Hitler's Rule.—The following items have been collected from various sources:

Smallpox has been reported in the Paris area, and the Academy of Medicine has urged the people to have themselves revaccinated, according to Radio Lyons.

The official report of the Budapest health officer states that during January there were 4 cases of typhus in Budapest, according to the *Deutsche Zeitung*, Budapest. The burgomaster of Aalborg insists there are no lice in his community and refuses to take precautions against typhus, declaring that the medical officer's methods of investigations are illegal, according to the Göteborgs *Handels-och Sjofartstidning*. The meeting of the district medical officers at Copenhagen decided that the need for delousing centers is not pressing, but the Ministry of Health is prepared to act at short notice.

According to the Paris *Soir*, the comité nationale de l'enfance has submitted a report to the Academy of Medicine of Paris, stating that emaciation and an increase in tuberculosis are prevalent among the population in the occupied zone as a result of food restrictions.

Twelve persons were seriously "poisoned" by meat in Miskolc, according to the *Deutsche Zeitung*, Budapest. The illness was traced to sausage sold by a butcher named Augustini. The authorities made an investigation to determine whether the meat came from a diseased animal clandestinely slaughtered. The chief physician of the Elisabeth Hospital established that the cause of the illness was "paratyphoid infection." This announcement caused great anxiety in Miskolc, as a number of families had bought meat from this butcher.

The Croat minister of public health, according to the *Neues Wiener Tagblatt*, in an address at the annual meeting of Croat physicians, pointed out that the Croat state is confronted with an impossible public health situation, as in the whole of Croatia there are only fifteen hundred physicians, less than in the old Croatia before the war of 1914-1918.

All persons of Jewish descent in Bulgaria who belong to the medical, dental and pharmaceutical professions and who no longer can follow their profession in urban areas will, according to *Transocean*, now be settled in rural districts, under the law of civilian mobilization, where there is a shortage of doctors and pharmacists.

In an article in the *Deutsche Allgemeine Zeitung* the death rate among infants is said to be favorable in Germany, although measures must be taken to reach still better figures. A center for collecting mother's milk is to be created in Gau Essen.

Paris had 2,270,253 inhabitants on January 8, according to Havas, as compared with 1,051,506 in 1940 and 2,824,746 in 1936. The total number of people in the department of the Seine is 4,136,614.

The reich youth leader, Axmann, addressed the Hitler youth leaders in Berlin and said, according to DNB, that during 1942 the Hitler youth would pay particular attention to securing candidates for the army medical corps and will increase its efforts in caring for the welfare of the soldiers and for the next of kin of those killed. Axmann is reported to have said that all the Hitler youth leaders fit for service were now with the forces and the practical work in this organization was now being done by the younger and subordinate elements of the corps. All the other activities of the Hitler youth would be of the kind dictated by the necessities of the war. Axmann stated that service in the East is now the most important task.

Government Services

General Dunham to Go to Ecuador

Brigadier General George C. Dunham, Medical Corps, U. S. Army, has been appointed director of a new division of health and sanitation in the Office of Inter-American Affairs. General Dunham will be placed at the head of a mission which is going to Ecuador to undertake malaria control, improvement of sewage disposal and other sanitary measures in cooperation with the Ecuadorean government. According to *Science*, members of the mission will include Dr. Walter C. Earle of the International Health Division of the Rockefeller Foundation and recently health officer of the Champaign-Urbana (Ill.) health district. General Dunham was chief of the division of preventive medicine, Office of the Surgeon General, War Department, from 1922 to 1925; director, military sanitation, medical field service school, Carlisle Barracks, Pennsylvania, 1926-1931; technical adviser of public health to the governor general of the Philippine Islands, 1931-1935, and director of laboratories of the Army Medical School since 1936.

Health of the Army

A new low death rate per thousand strength for the U. S. Army was established in 1940. According to the annual report of the surgeon general, there were 257,136 admissions to sick report from all causes, giving an annual rate per thousand of 763.3, an increase of 44 per cent over that for 1939, which was the lowest on record. Diseases of the respiratory system were responsible for the largest number of admissions. In second place were infectious diseases and conditions of the digestive system. There were 267 admissions with one hundred and eight deaths due to aircraft accidents in 1940, and thirty-two deaths from accidental drowning. The admission rate for venereal diseases for the whole army was 42.5 per thousand strength. The number of days lost from duty due to venereal disease was 456,148. The average number of men absent from duty each day from this cause was 1,246. The average length of treatment in hospitals or quarters for all venereal diseases was thirty-two days. The average number of days lost per case for syphilis was twenty-eight, for gonorrhea thirty-five and for other venereal diseases twenty. Gonorrhea continued to lead the causes of noneffectiveness. During the year, 1.39 per cent of the strength of the army was lost by discharge or retirement for physical disability. Dementia praecox was the leading cause for discharge. Manic depressive psychoses also appeared for the first time among the leading causes. Tuberculosis as a leading cause of death reached a new low and is near the bottom of the list. There were 229 deaths attributed to motor vehicle accidents.

During the fiscal year 1941 the average number of men present daily in the Civilian Conservation Corps was 248,926, a reduction of 22,252 from the preceding year. Of the 337,363 admitted to sick report during the year, 316,758 were for disease and 20,612 for injuries. This was the smallest total for injuries in any one year since the inception of the corps in 1933. There were 521 deaths, of which 248 were attributed to injuries and 273 to disease.

On Jan. 2, 1941 the Office of the Surgeon General, except the Army Medical Museum and the Army Medical Library, was moved from War Department Annex Number 1 into a portion of the Social Security Building.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 28, 1942.

Health Conditions in Germany

Information as to health conditions in Germany is difficult to obtain. The press is rigidly controlled, and truth is not only suppressed but replaced by any fiction which is thought to be helpful. However, leakage will occur. Few German medical journals come to this country now, but the *Times* is able to quote from information showing that undernourishment and fatigue are beginning to tell on the population. In a copy of the *Münchener medizinische Wochenschrift* the date of which is not given, Dr. G. Seiffert sets out to prove that precautions suggested by previous wars kept epidemics under control until the outbreak of the conflict on the eastern front, but his figures suggest the opposite. Cases of diphtheria during the first five weeks of 1931 numbered 25,144; in 1939, 65,144; in 1941, 65,775. For scarlet fever the figures were in 1931, 19,494; in 1940, 56,154; in 1941, 167,428. For dysentery, 1931, 2,596; 1939, 6,135; 1940, 12,705. Similar increases are shown for whooping cough, tuberculosis and food poisoning. The average number of cases of disease given in 1931 is increased threefold in 1939 and sixfold in 1941.

The *Deutsche medizinische Wochenschrift* devotes the major part of two December issues to the effects of prolonged fatigue on health. It states that only relaxation can remove the effects, often far reaching, of sustained fatigue. All attempts to do so by stimulant drugs, such as amphetamine sulfate, have utterly failed. Increasing observations that the use of such drugs has not only produced total collapse but inculcated drug habits is strengthening the resolve of physicians not to use them for combating fatigue.

Report on the Public Health

The reports on the public health continue good in spite of war conditions. Sir William Jameson, chief medical officer of the Ministry of Health, states that there is no indication of an influenza epidemic, although it is too early to say that we shall completely escape. In the one hundred and twenty-six large cities of England and Wales the deaths recorded from influenza in the week ended January 3 numbered only three, compared with fifty-three last year. The measles epidemic, which raged last year, has almost disappeared. The cases notified during that week numbered 926, compared with 17,853 last year. Decreases are also recorded in notifications of scarlet fever, diphtheria, pneumonia, cerebrospinal fever and whooping cough. Jameson advises all mothers of infants to take advantage of the black currant preparations made available through maternity and child welfare centers and food offices. There is black currant juice for infants up to 6 months and black currant purée for those from 6 months to 2 years of age.

Reduction of Rationed Foods

In a broadcast the minister of food, Lord Woolton, said that our food position was so strong that he had been able to grant a winter bonus of rationed foods. But a new factor had arisen: the war with Japan. Much of our food had been coming across the Pacific Ocean. Ships that brought us food must now carry men and munitions to new places far over the seas, and we should have to manage with smaller imports for a time. We could for a time live on our present rations, but it would not be wise. It would be much more comfortable to cut our rations a bit and know that there was safety behind them. The weekly rations of the following goods are now reduced to the level before an increase recently granted: sugar 8 ounces, butter and margarine 6 ounces, of which not more than 2 ounces may be butter; cooking fat 2 ounces. The cheese weekly ration will be reduced from 3 to 2 ounces. For the present a bigger ration will be allowed to certain classes of workers, and the ration for vegetarians and the diabetic will not be reduced.

The Increased Use of Canned Foods

One of the most important dietetic changes brought about by the war is an increased use of canned foods. The Ministries of Food and Health have therefore made a joint announcement on these foods. They state that canned food compares favorably with cooked food. Articles for canning are selected with care and are canned almost at once before they have lost any of their nutritive value. Processing or sterilization is done with scientific care and less loss of nutritive value than in cooking on an open range. Chemically there is little risk of contamination with tin. Articles, such as acid fruits, which might attack tin are packed in lacquered cans, which give a high degree of protection. Little or no solder is now used to seal food cans. Bacteriologically, canned is less likely to be infected than fresh food. It is handled less, as most of the preparation is done by machinery, and it is sterilized after packing in the tin.

The life of canned foods varies with the article, the presence or absence of protective internal lacquer, and the temperature and humidity of the place of storage. The last acts only by producing rusting and eventually perforation of the tin. One year is given as the usual period for the storage of canned soft stoned fruits in a cool place. After that the food value is not impaired but the pack may appear less attractive and the natural acidity of the fruit may attack any scratched or damaged parts of the lacquer. Honey or jam should keep at least three years in lacquered cans. Vegetables store well for at least two years. They then become less attractive, but their food value remains unchanged. Fish, especially sardines and salmon, keep for over five years. So do meat packs (sausages, meat rolls, galantine, tongues, soups). Canned hams present a special problem; the packer usually guarantees them for only six months. But if after longer storage the can is not bulged, the contents are usually sound. Condensed milk keeps for varying periods according to the sugar content. Unsweetened condensed milk keeps for three years, sweetened full cream for six to nine months, after which the sugar may crystallize, but this is in no way objectionable. Dry milk powder should be used within a few weeks.

Increase of Professional Fees

An inevitable result of war is increased prices, resulting in the first instance in scarcity of certain commodities resulting from diversion of industry into war channels. An effect of the increased cost of living is a demand by organized workers for an increased wage to meet this. The increased wage leads to a further increase in the cost of living. This process is known as inflation, and the government, which now controls the whole economy of the country, says that it is anxious to avoid this. Nevertheless it has been responsible for a good many increases in wages. If the process does not go too far we can stand it, as we can other evils. The General Practice Committee of the British Medical Association has recommended that the fees in private practice be increased by 20 per cent. Certain insurance companies have already increased from $5 to $6 the fee for life insurance examinations. The committee has decided to make representations to companies which have not yet taken this course. It has also decided to advise branches and divisions to secure readjustment of the salaries of district medical officers in view of the additional work in many areas and increased practice expenses. A wartime increase in the fees of public

vaccinators is also advised and an application for the same increase in the fees of police surgeons. For medical officers of fire departments a fee of $2.50 is advised for medical examination of entrants and for rendering first aid to persons injured at fires, if the attendance did not exceed half an hour.

Use of Glass and Resins in Rebuilding Houses

In consequence of destruction by air raids there will be a good deal of rebuilding after the war, and improved forms of construction are already being discussed. In a lecture on "The Postwar Home: Its Interior and Equipment," Dr. E. Frankland Armstrong said that glass would soon be more widely used as a building material. There were toughened varieties at which stones could be thrown with impunity, and window glass which cut out the heat rays but admitted the health giving ultraviolet rays of the sun. Transparent synthetic resins would also supplant glass.

MEXICO CITY

(From Our Regular Correspondent)

Feb. 20, 1942.

Tuberculosis in Mexico

The prevalence of tuberculosis in Mexico can be roughly estimated only through the available figures regarding its mortality. The tuberculosis death rate, including all forms of the disease, was 78.83 per hundred thousand in 1922, 68.71 in 1930 and 55.38 in 1938. Notification of cases to public health authorities is quite deficient, but it is believed that an average of 120,000 to 150,000 cases of all forms of tuberculosis exist, and that about 10 per cent of them are in the Federal District. Tuberculosis is more prevalent in the crowded districts of the cities than in the rural areas, although in places located on the coast and in the tropical zones, owing to the presence of malaria, hookworm disease, undernourishment and other ailments, the disease is widespread. In the mining districts in Pachuca City, Hidalgo, Guanajuato City, Guanajuato, and others, the presence of silicosis increases the infection. In the cities and ports of Tampico and Veracruz on the Gulf Coast and Mazatlán on the Pacific, the mortality rate is as high as 500 per hundred thousand. Along the northern border, especially in Nuevo Laredo and Matamoros, Tamaulipas, and Nogales, Sonora, the number of cases is high because of the large number of cases deported. The statistics of the sanatorium of Huipulco show that 68 per cent of patients arrive with bilateral lesions and that 50 per cent of the patients show cavities when entering. In addition to overfeeding the surgical treatment is the most used. The ambulatory treatment of patients with mild types of tuberculosis is extensively used in Mexico with a long rest in their homes supervised by specialized nurses.

During the last ten years several measures to fight against tuberculosis have been taken by the Division of Tuberculosis in the Federal Department of Health, the Department of Public Assistance and the National Tuberculosis Committee. The number of beds for tuberculous patients in official institutions in Mexico amount to less than one thousand beds plus over one hundred in private hospitals. In the last six years the number of tuberculosis clinics has increased. There are eight in the Federal District and twenty-five scattered in the most stricken areas over the nation. A preventorium for children, supported by the Department of Public Education, with fifty beds is located in one of the suburbs of Mexico City. The Departments of Labor and Agriculture are doing their share in improving working conditions and encouraging proper feeding among people living in rural areas. During 1941 the National Tuberculosis Committee started a drive to raise funds which was followed by unexpected success, because in a short time the committee was able to collect about $750,000 and the bureau of finances of the committee is studying the possibility of raising funds regularly, through the sale of a stamp and by a sort of social security against the disease. Dr. Victor Fernández Manero, federal director of health, appointed Dr. Neftalí Rodríguez as chief of the division of tuberculosis, who was elected also president of the national tuberculosis committee. Licenciado Aarón Sáenz was elected treasurer general and Dr. Alejandro Berges executive secretary of the committee. The program for the present year includes the building of a sanatorium for children, hospitals for advanced cases, a preventorium and a rehabilitation farm in the Federal District, and two more sanatoriums on the Gulf and Pacific coasts, at a cost of about $1,000,000, with which there will be about two thousand more beds available.

Department of Health Manufactures Biologic Preparations

Chemists and bacteriologists working in the Institute of Hygiene of the Federal Department of Health have been increasing the manufacture of biologic preparations, chemicals and medicines to prevent the shortage of such products. Biologic preparations manufactured by the Institute of Hygiene are identical to the foreign ones used before the present situation developed, and the cost is much lower. Officials think that production can be increased for exportation. The Federal Department of Health through the Department of Economics has bought another ton of quinine to be distributed in the malaria zones. In a laboratory recently opened in Guatimoc, Chiapas, in which the cinchona plantation is located, the manufacture of quinine products as an experiment has started. President Camacho has issued an order that all cinchona trees and plantations must be in charge of the Federal Department of Health.

Hospital Program in Mexico

According to a broadcast made by Dr. Gustavo Baz, minister of public assistance, last Sunday the federal government during the present year will encourage the building of hospitals in all large cities, the improvement of hospital and laboratory equipment all over the country and the building of a big medical center in Mexico City with all modern facilities for patients coming to the capital for treatment. Dr. Baz announced also that during the year work will be started on the Children's Hospital, the Mundet Maternity Hospital, the Infectious Disease Hospital, the Dental Institute and the Civil Hospitals of Monterrey, Tampico, Manzanillo and Juquilpan, besides clinics in Veracruz, Puebla, Tuxtla Gutierrez, San Luis Potosi and Sonora.

Marriages

SIMON EUGENE DRISKELL to Miss Tallulah Scruggs Turner, both of Jacksonville, Fla., in St. Augustine, February 20.

LEIGH FESTUS WATSON, Los Angeles, to Miss Pepita La Mone of Hollywood, Calif., in New York, January 6.

CREIGHTON WRENN, Mooresville, N. C., to Miss Charlotte Hutson Martin of Charlotte, February 17.

WILLIAM EDWIN DICKERSON, Danville, Va., to Mrs. Cecil May Graeter of Richmond, January 3.

SOLOMON TANENBAUM, Augusta, Ga., to Miss Esther Ann Cordish of Baltimore, January 18.

CHARLES D. SCHILLING, Charlottesville, Va., to Miss Alice Thompson of Gretna, January 10.

EPHRAIM E. CAMP, Russellville, Ky., to Miss Ruth Bonham of Dresden, Ohio, January 25.

GEORGE HOLLANDER to Dr. BEATRICE ELSIE STERLING, both of Philadelphia, January 25.

BYRON Z. BINNS, Monticello, Ark., to Miss Pauline Berry at Benton, January 17.

IVAN ISAACS, New York, to Miss Lola Hortense Schain of Brooklyn, February 11.

ROBERT H. ROBBINS, Waukegan, Ill., to Miss Rachel Egbert of Urbana recently.

Deaths

Frank Leech ● Washington, D. C.; Columbian University Medical Department, Washington, 1891; formerly clinical professor of medicine at his alma mater, now known as the George Washington University School of Medicine; served during World War I; lieutenant colonel, Medical Reserve, U. S. Army; past president of the Medical Society of the District of Columbia and of the Clinico-Pathological Society of Washington, D. C.; emeritus fellow of the American Academy of Pediatrics; served in various capacities on the staff of the Children's Hospital from 1892 until his retirement in 1938, when he was honored by a tablet citing his distinguished services to the institution, and his friends established the Frank Leech Laboratory Fund; formerly on the consulting staff of the Garfield Memorial Hospital; fellow of the American College of Physicians; aged 72; died, February 7, in the Walter Reed General Hospital of cerebral thrombosis.

John Joseph Killeen, Chicago; Jenner Medical College, Chicago, 1904; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; member of the Illinois State Medical Society; formerly assistant clinical professor of ear, nose and throat diseases at the Loyola University School of Medicine; assistant in ear, nose and throat diseases, Rush Medical College, Chicago, from 1907 to 1909; instructor in ear, nose and throat diseases, Chicago Policlinic from 1909 to 1911; surgeon for the Baltimore and Ohio Railroad from 1909 to 1914; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War I; consulting ear, nose and throat surgeon, U. S. Marine Hospital; otolaryngologist and attending surgeon, St. Anthony de Padua Hospital and St. Mary of Nazareth Hospital, where he died, March 17, aged 64.

Maynard Ladd, Newton Square, Pa.; Harvard Medical School, Boston, 1898; member of the Massachusetts Medical Society; past president of the American Pediatric Society and the New England Pediatric Society; assistant in physical chemistry from 1900 to 1902, assistant in diseases of children from 1900 to 1903, assistant in pediatrics from 1903 to 1906, instructor in pediatrics from 1906 to 1922 and associate in pediatrics from 1922 to 1938 at his alma mater; was deputy commissioner of the children's bureau of the American Red Cross in France and directed hospitals there during World War I; in 1934 was made an Officier d'Académie, France; consulting physician to the Children's Hospital; medical director of the preventive clinic, Boston Dispensary; aged 69; died, March 9, in Media of cardiorenal disease.

Daisy Maude Orleman Robinson ● Washington, D. C.; Columbian University Medical Department, Washington, 1890; member of the Medical Society of the State of New York; joined the medical corps of the French army during World War I and later was transferred to the United States Army, with a commission as major; received decorations from both governments; formerly associated with the U. S. Public Health Service; at one time member of the state board of health of New York; aged 72; died, March 13, in St. Luke's Hospital, Jacksonville, Fla.

John Frederick Kuhn ● Oklahoma City; Georgetown University School of Medicine, Washington, D. C., 1901; professor emeritus of gynecology at the University of Oklahoma School of Medicine; member of the Central Association of Obstetricians and gynecologists; fellow of the American College of Surgeons; member of the surgical staff of the State University and Crippled Children's Hospital; consulting surgeon, St. Anthony's Hospital; aged 69; died, February 14, in Decatur, Ga., of coronary thrombosis.

Bryan Charles Magennis, Paterson, N. J.; University of the City of New York Medical Department, New York, 1883; formerly a dentist; member of the Medical Society of New Jersey; past president of the Passaic County Medical Society; fellow of the American College of Surgeons; veteran of the Spanish-American War; at one time health officer and member of the city board of health; consulting surgeon, Paterson General and the Nathan and Miriam Barnert Memorial hospitals; aged 83; died, February 17.

Charles Barnett Reynolds, Philadelphia; Medico-Chirurgical College of Philadelphia, 1899; fellow of the American College of Surgeons; served during World War I; formerly associate professor of obstetrics at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; on the courtesy staff of the Graduate Hospital; visiting gynecologist of the Germantown, Jewish, Presbyterian and Hahnemann hospitals; aged 69; died, March 1, of carcinoma of the rectum.

Henry Wilbur Irwin, Indianapolis; University of California Medical School, San Francisco, 1910; member of the Indiana State Medical Association; served during World War I; formerly a medical missionary in China and instructor at the West China Union University School of Medicine at Chengtu, Szechwan, China; aged 60; on the staffs of St. Francis Hospital, Methodist Hospital, Indiana University Hospital and St. Vincent's Hospital, where he died, February 8, of bronchopneumonia.

Jacob Joshua Levy, Syracuse, N. Y.; Syracuse University College of Medicine, 1903; member of the Medical Society of the State of New York, American Roentgen Ray Society and the Radiological Society of North America, Inc.; associate professor of clinical medicine in physical therapy at his alma mater; on the staff of the University Hospital of the Good Shepherd; aged 62; died, February 22, in Rochester, Minn., of acute myelogenous leukemia.

Hermann Fischer ● New York; Columbia University College of Physicians and Surgeons, New York, 1896; an Affiliate Fellow of the American Medical Association; fellow of the American College of Surgeons; member of the American Association for Thoracic Surgery; formerly clinical professor of surgery at the New York University College of Medicine; on the staff of the Lenox Hill Hospital; aged 70; died, March 5, of coronary thrombosis.

Fuad Isa Shatara ● Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1916; fellow of the American College of Surgeons; instructor in the department of anatomy at the Long Island College Hospital from 1924 to 1929; visiting surgeon and chief, traumatic service, Cumberland Hospital; member, surgical courtesy staff, Harbor Hospital; surgeon, Prospect Heights Hospital; aged 48; died, January 8.

Dorsey Mahon McPherson ● Washington, D. C.; Howard University College of Medicine, Washington, 1877; Columbian University Medical Department, Washington, 1884; joined the medical corps of the Army and served two years in the field with the Indian Scouts and the Sixth Cavalry; served as medical examiner of pensions and later as medical expert in the office of the Secretary of the Interior; aged 84; died, March 2.

Harold Carl Goodwin, Springfield, Mass.; Dartmouth Medical School, Hanover, N. H., 1900; member of the Massachusetts Medical Society; division examiner of prisoners for the commonwealth of Massachusetts; at one time superintendent of the Albany (N. Y.) Hospital; on the staffs of the Mary Lane Hospital, Ware, and of the Mercy and Wesson Memorial hospitals; aged 63; died, March 1, of coronary thrombosis.

Charles Wilson Doughtie ● Norfolk, Va.; Medical College of Virginia, Richmond, 1898; fellow of the American College of Surgeons; past president of the Norfolk County Medical Society; served on the staff of the Norfolk General Hospital in various capacities; for many years surgeon to the Norfolk and Western Railway; member of a draft board during World War I; aged 65; died, March 5, of pulmonary embolism.

Lionel David Prince ● San Francisco; University of California Medical Department, San Francisco, 1912; member of the American Academy of Orthopedic Surgeons; fellow of the American College of Surgeons; past president of the Western Orthopedic Association; served during World War I; chief orthopedic surgeon, Mount Zion Hospital; aged 55; died, March 6, in the University of California Hospital.

Archibald Addison Alexander, Oakland, Calif.; University of California Medical Department, San Francisco, 1907; member of the California Medical Association; fellow of the American College of Physicians; chief in cardiology, Samuel Merritt Hospital; associate in medicine, Alameda County Hospital; consultant in cardiology, Children's Hospital of the East Bay; aged 61; died, January 17.

James Brodie Ross, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1924; assistant professor of medicine at his alma mater; member of the American Clinical and Climatological Association; secretary of the medical board of the Montreal General Hospital; formerly medical superintendent of the Children's Memorial Hospital; aged 41; died, March 7.

Dennis David Daly, Ellenburg Depot, N. Y.; Syracuse University College of Medicine, 1901; member of the Medical Society of the State of New York; had been health officer for many years of several Clinton County communities at intervals

since 1904; formerly member of the board of education; aged 66; died, February 5, of ventricular fibrillation, coronary occlusion and sclerosis.

Carolyn N. Macdonald ● Chicago; Rush Medical College, Chicago, 1925; formerly clinical assistant in urology at the Northwestern University Medical School; past president and vice president of the Chicago Council of Medical Women; on the staff of the Women and Children's Hospital; aged 54; died, February 20, in St. Luke's Hospital of chronic nephritis and uremia.

Dana W. Kingsbury ● Nanticoke, Pa.; College of Physicians and Surgeons, Baltimore, 1882; an Affiliate Fellow of the American Medical Association; was a member of the draft board during World War I; member of the board of education; for many years surgeon for the Pennsylvania Railroad Company; aged 89; died, February 8, of arteriosclerotic heart disease.

William De Lue Anderson, Portland, Maine; Medical School of Maine, Portland, 1915; also a pharmacist; fellow of the American College of Surgeons; member of the Maine Medical Association; formerly county medical examiner; associate surgeon, Maine General Hospital; surgeon, Maine Eye and Ear Infirmary; aged 61; died, March 1, of coronary thrombosis.

Adolph Von Prief Fardelmann ● Brooklyn; Long Island College Hospital, Brooklyn, 1916; fellow of the American College of Surgeons; president of the Brooklyn Surgical Society; surgeon during World War I; aged 48; courtesy surgeon, St. John's Hospital; on the staffs of the Lutheran Hospital and the Bushwick Hospital, where he died, February 17.

Rowland William Hall ● Jackson, Miss.; University of Nashville (Tenn.) Medical Department, 1901; past president of the Central Medical Society; member of the American Academy of Dermatology and Syphilology; at one time registrar of vital statistics, state board of health; aged 66; died, February 14, at his home in Clinton.

Dora Van Buren Burkett, Columbus, Ohio; Ohio Medical University, Columbus, 1902; member of the Ohio State Medical Association; veteran of the Spanish-American War and World War I; formerly a lieutenant colonel and chief surgeon of the Ohio National Guard; aged 69; died, March 2, of coronary sclerosis and arteriosclerosis.

David Henry Lawrence, Big Spring, Texas; University of Texas School of Medicine, Galveston, 1902; member of the State Medical Association of Texas; served during World War I; formerly associated with the U. S. Veterans Bureau; on the staff of the Big Spring State Hospital; aged 66; died, February 5, of coronary disease.

David Stewart Fettes, Brooklyn; Long Island College Hospital, Brooklyn, 1907; member of the Medical Society of the State of New York; served during World War I; assistant visiting surgeon on the staff of the Cumberland Hospital; secretary of the medical board of the Madison Park Hospital; aged 61; died, February 16.

Henry Bacon, Jacksonville, Fla.; Bellevue Hospital Medical College, New York, 1883; member of the Florida Medical Association; was retired with rank of brigadier general after nearly twenty-five years of service in the Florida National Guard; for many years on the staff of St. Luke's Hospital; aged 84; died, February 8.

Robert Black Hopkins ● Milton, Del.; Jefferson Medical College of Philadelphia, 1887; past president of the Medical Society of Delaware; member of the board of education of Milton and past president of the county board of education; formerly mayor; at one time member of the state legislature; aged 76; died, March 8.

Jack Halton, Sarasota, Fla.; Miami Medical College, Cincinnati, 1895; member and formerly vice president of the Florida Medical Association; past president of the Florida Railway Surgeons Association; served during World War I; aged 73; died, February 26, in St. Petersburg of coronary thrombosis.

George Joseph Tusson, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1901; assistant demonstrator in the microscopic laboratory at his alma mater, 1907-1908; veteran of the Spanish-American War; on the staff of the French Hospital; aged 74; died, January 17.

Joseph Wright McCready ● Newburgh, N. Y.; Bellevue Hospital Medical College, New York, 1888; an Affiliate Fellow of the American Medical Association; member of the Medical Society of the State of New York; aged 78; died, Dec. 31, 1941, of cerebral hemorrhage, hypertension and arteriosclerosis.

Albert Frederick Ullman, New York; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1914; member of the Medical Society of the State of New York; on the staff of the Hospital for Joint Diseases; aged 52; died, January 20, in Bellevue Hospital.

Franz Pfister, Milwaukee; University of Wooster Medical Department, Cleveland, 1895; past president of the Milwaukee County Medical Society; formerly professor of ear, nose and throat at the Marquette Unviersity School of Medicine; aged 81; died, March 2, of pneumonia.

C. Curtis Hudson ● Greensboro, N. C.; University College of Medicine, Richmond, Va., 1910; served during World War I; health officer; formerly health officer of Danville, Va., Charlotte, N. C., and Richmond, Va.; aged 60; died, February 17, of coronary occlusion.

Frederick Prescott Batchelder, Boston; Boston University School of Medicine, 1891; professor emeritus of physiology at his alma mater; consultant on the staff of the Massachusetts Memorial Hospitals; aged 77; died, February 14, of carcinoma of the left kidney.

James Thomas Ferrell, Chapmanville, W. Va.; Chicago College of Medicine and Surgery, 1913; member of the West Virginia State Medical Association; aged 56; died, February 9, in a hospital at Huntington of anaphylactic shock and hypertrophy of the prostate.

Arthur M. Bishop, Good Hope, Ill.; Northwestern University Medical School, Chicago, 1898; member of the Illinois State Medical Society; aged 70; died, January 11, in St. Luke's Hospital, St. Louis, of injuries received in an automobile accident on Dec. 30, 1941.

Franklin Herbert Hagerman, Milwaukee; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1892; member of the State Medical Society of Wisconsin; aged 80; died, February 1, in the Milwaukee Hospital of carcinoma of the bladder.

Andrew Peters ● Springfield, Mass.; Columbia University College of Physicians and Surgeons, New York, 1914; member of the American College of Chest Physicians; chief, tuberculosis service, Health Department Hospital; aged 51; died, January 8.

George Van Wyland ● Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; on the staff of St. Anne's Hospital; aged 71; died, March 23, of injuries received in an automobile accident.

George Irvine I. Ireland, Tyler, Pa.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1923; member of the Medical Society of the State of Pennsylvania; aged 41; died, February 8, in Mill Run of malignant hypertension.

Joseph E. Hawley, Burr Oak, Kan.; St. Joseph (Mo.) Hospital Medical College, 1882; member of the Kansas Medical Society; past president of the Jewell County Medical Society; aged 89; died, February 11, of hypostatic pneumonia.

Peter Joseph Fleming, Boston; University of Western Ontario Medical School, London, Ont., Canada, 1902; member of the Massachusetts Medical Society; aged 66; died, Dec. 15, 1941 of chronic lymphatic leukemia and bronchopneumonia.

Thomas Buffington Bird, Baton Rouge, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1914; member of the Louisiana State Medical Society; served during World War I; aged 54; died, February 6, of carcinoma.

Perry Arnold Kendall ● Crothersville, Ind.; University of Louisville (Ky.) Medical Department, 1893; aged 72; died, February 1, in St. Joseph's Infirmary, Louisville, Ky., of diabetes mellitus, arteriosclerosis and ulcer of the stomach.

Scott M. Huff, Belleville, N. J.; Jefferson Medical College of Philadelphia, 1893; served during World War I; formerly on the staff of the Veterans Administration Facility, Lyons; aged 73; died, February 25, of cerebral hemorrhage.

Charles Howard Dalton ● Somerville, Mass.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1901; on the staff of the Somerville Hospital; aged 65; died, February 12, of coronary thrombosis.

Joseph Casimer Ciesla, Chicago; University of Illinois College of Medicine, Chicago, 1927; member of the Illinois State Medical Society; aged 39; died, February 14, in New Mexico of pulmonary tuberculosis.

John Richard Bozarth, Miami, Fla.; Rush Medical College, Chicago, 1891; aged 71; died, February 3, in the Jackson Memorial Hospital of bronchogenic carcinoma of the right lung and pleurisy with effusion.

Frank Joseph Kosek, Wilkes-Barre, Pa.; University of the South Medical Department, Sewanee, Tenn., 1904; formerly city bacteriologist; aged 61; died, February 10, of carcinoma of the prostate.

James Charles Peel, ● Cleveland; Ohio State University College of Medicine, Columbus, 1922; served during World War I; aged 47; died, January 9, at his home in Brecksville, Ohio, of coronary occlusion.

William P. Knight ● Greensboro, N. C.; Baltimore Medical College, 1898; past president of the Guilford County Medical Society; aged 69; died, February 2, in St. Leo's Hospital of carcinoma of the lung.

Samuel James Herman, Detroit; Maryland Medical College, Baltimore, 1900; Baltimore Medical College, 1901; aged 68; died, February 20, in Los Angeles of multiple septic cerebral emboli and lung abscess.

Leon Grotowski ● Chicago; Chicago College of Medicine and Surgery, 1913; served during World War I; on the staff of St. Mary of Nazareth Hospital; aged 63; died, February 4, of coronary occlusion.

Joseph Maurice Becher, Washington, D. C.; Georgetown University School of Medicine, Washington, 1934; member of the Medical and Chirurgical Faculty of Maryland; aged 33; died, January 14.

Alois Friedrich Hasa, Rutland, Mass.; Medizinische Fakultät der Universität Wien, Austria, 1937; aged 28; died, February 14, in the State Sanatorium of tuberculosis of the lungs and larynx.

Anthony Augustus O'Neill, Chicago; Kansas City (Mo.) Medical College, 1890; member of the Illinois State Medical Society; fellow of the American College of Surgeons; aged 82; died, January 4.

James Luther Adams ● Hobart, Okla.; College of Physicians and Surgeons, Little Rock, Ark., 1910; county health superintendent; aged 62; died, Dec. 31, 1941, of coronary thrombosis.

Frederick William Heath ● Oakdale, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1933; aged 37; died, January 27, in a hospital at Alexandria of pneumonia.

Obey N. Windle, Sayre, Okla.; Maryland Medical College, Baltimore, 1905; member of the Oklahoma State Medical Association; aged 58; died, January 3, of coronary occlusion.

Isaac H. Lane, La Grange, Ga.; Atlanta Medical College, 1891; member of the Medical Association of Georgia; aged 75; died, February 25, of nephritis and coronary thrombosis.

James Christian Chestnut ● Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1897; on the staff of the Stetson Hospital; aged 66; died, January 28.

William Henry Hicks, Newark, N. J.; University of the City of New York Medical Department, 1893; aged 77; died, February 13, of chronic myocarditis and chronic prostatitis.

Claude Alvah Horton, Glens Falls, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1892; aged 75; died, February 14, of myocarditis.

Austin Taylor Bryant, McKinney, Texas; Memphis (Tenn.) Hospital Medical College, 1894; aged 81; died, February 11, of coronary thrombosis.

John E. Lawson, Jeffersonville, Ind.; University of Louisville (Ky.) Medical Department, 1874; aged 87; died, February 15, of arteriosclerosis and uremia.

William Elmo Arthur ● Cardiff, Md.; University of Maryland School of Medicine, Baltimore, 1892; bank president; aged 73; died, January 2.

Charles W. Bonsh, Beavertown, Pa.; Baltimore University School of Medicine, 1893; aged 73; died, January 26, of chronic myocarditis and arteriosclerosis.

William Robert Gaddie ● Duenweg, Mo.; Hospital College of Medicine, Louisville, Ky., 1898; aged 71; died, January 11, of coronary occlusion.

Chester Harlow Gould, Pasadena, Calif.; Boston University School of Medicine, 1896; aged 70; died, February 8, in a local hospital of pneumonia.

Isaac Bright Hines, Fresno, Calif.; Boston University School of Medicine, 1890; aged 85; died, February 18, in St. Agnes Hospital of pneumonia.

Henry Francis Sears, Boston; Harvard Medical School, Boston, 1887; member of the Massachusetts Medical Society; aged 79; died, January 1.

Theodore Ferdinand Segelcke, Brooklyn; Long Island College Hospital, Brooklyn, 1898; aged 65; died, January 13, of coronary thrombosis.

Andrew Charles Topie, Cincinnati; Medical College of Ohio, Cincinnati, 1899; aged 73; died, January 6, of diabetes mellitus and pneumonia.

Campbell McGavern Chapman, Des Moines, Iowa; Rush Medical College, Chicago, 1894; aged 73, died February 13, in Miami, Fla., of heart disease.

Walter Irving Stockton, Siler City, N. C.; College of Physicians and Surgeons, Baltimore, 1914; aged 51; died, January 16, in Pittsboro.

Arthur W. Wilson, Chicago; Bennett Medical College, Chicago, 1903; aged 74; died, January 22, in Los Angeles of cerebral hemorrhage.

Joseph Watry, Evanston, Ill.; Hahnemann Medical College and Hospital, Chicago, 1883; aged 78; died, January 22, of coronary sclerosis.

G. P. Fisher, Ethel, W. Va.; Kentucky School of Medicine, Louisville, 1908; aged 68; died, February 9, in Pocataligo of diabetes mellitus.

William T. Henry, Stevensville, Md.; College of Physicians and Surgeons, Baltimore, 1896; aged 72; died, January 25, of hemiplegia.

Ottul Klaraaus Lindboe, Lac Qui Parle, Minn.; Rush Medical College, Chicago, 1887; aged 90; died, February 5, of myocarditis.

James Thomas Dean, Moorhead, Miss.; Louisville (Ky.) Medical College, 1891; aged 82; died, February 3, of chronic myocarditis.

Howard Risly Moore, Charles Town, W. Va.; College of Physicians and Surgeons, Baltimore, 1883; aged 80; died, January 10.

Perry Dickie, New York; New York Homeopathic Medical College, 1880; aged 85; died, January 20, of bronchopneumonia.

Charles Mead Griffin, West Tisbury, Mass.; Bellevue Hospital Medical College, New York, 1881; aged 84; died, Dec. 15, 1941.

William Carter, Chicago; National Medical University, Chicago, 1904; aged 71; died, January 4, in the Provident Hospital.

William Keer Fouts, Dallas, Texas; University of Louisville (Ky.) Medical Department, 1888; aged 73; died, January 15.

Martin V. Newman, Fouke, Ark. (licensed in Arkansas in 1903); aged 66; died, January 8, of carcinoma of the gallbladder.

Joseph Maybank, Charleston, S. C.; University of Maryland School of Medicine, Baltimore, 1889; aged 72; died, January 2.

Solomon F. Oden, Brentwood, Tenn.; University of Nashville (Tenn.) Medical Department, 1872; aged 93; died January 6.

George Kennedy Frink, San Francisco; Medical College of the Pacific, San Francisco, 1887; aged 81; died, January 23.

William Augustus Griffith, Covina, Calif.; Long Island College Hospital, Brooklyn, 1889; aged 83; died, January 20.

Justus O. Eason, Baker, Fla.; Medical College of Alabama, Mobile, 1901; aged 64; was found shot and killed, February 23.

Harper Ancel Wright, Duncansville, Pa.; Baltimore University School of Medicine, 1904; aged 60; died, January 6.

DIED IN MILITARY SERVICE

Ira Brown ● Chicago; University of Oklahoma School of Medicine, Oklahoma City, 1932; was appointed a first lieutenant in the medical reserve corps of the U. S. Army, Oct. 16, 1935; became a captain April 11, 1940 and a major Feb. 1, 1942; fellow of the American College of Surgeons; formerly clinical instructor of gynecology and obstetrics at the University of Chicago, The School of Medicine; at one time associate in obstetrics and gynecology at the Chicago Lying-in Hospital and Dispensary; aged 35; was burned to death, April 10, when a fire destroyed an officers' barracks at Camp Grant, Ill.

Harry Sage Gorelick, Detroit; University of Michigan Medical School, Ann Arbor, 1930; member of the Michigan State Medical Society; commissioned a first lieutenant in the medical reserve corps of the U. S. Army March 29, 1934 and promoted to captain, July 5, 1941; formerly on the staff of the City of Detroit Receiving Hospital; aged 35; was burned to death, April 10, when a fire destroyed an officers' barracks at Camp Grant, Ill.

Bureau of Investigation

THEODORE MARGOLIN—A MODERN PROTEUS

He Promoted One Fraud One Day, Another the Next

A man of rare gifts is Theodore Margolin of Brooklyn. In his pursuit of profitable schemes to foist on a trusting public, not even the Post Office fraud orders that have been issued to debar his schemes from the mails have seemed to discourage him; he has gone merrily on his way developing new swindles to separate the credulous from their money. Apparently without training in medicine or chemistry, Margolin blossomed out as an alleged expert in bust development. Under his own name and a fancier trade style, "Developex Company," he advertised and sold through the mails what he called "Developex" for increasing the size of the bust and building up "thin or unshapely" legs to attractive proportions. For either condition his treatment constituted "a new and easy method."

It mattered not to Mr. Margolin that other "bust developers" had at various times run afoul of the postal laws and been banned from the mails by Post Office fraud orders. But the day came when the government caught up with him. After due investigation of his scheme the Post Office on June 12, 1941 ordered him to show cause why a fraud order should not be issued and the mails closed to his scheme. Even after Margolin had obtained several postponements he did not appear at the hearing when it finally occurred on August 8, nor did any one else appear there to represent him.

Nothing more wonderful than lanolin (hydrous wool fat), cocoa butter and a little water and perfume was found to make up Developex, according to the testimony of a government chemist who had analyzed it. Such a mixture contributed nothing new to medical science, as shown by an expert medical witness for the government, since hydrous wool fat and cocoa butter have for years been familiar substances to the medical profession and used chiefly as bases for ointments. This witness further testified that flat, undeveloped or sagging breasts are due to various causes, such as underweight, undernourishment, hypothyroidism, tuberculosis, anemia and failure of the endocrine glands to develop. Further, sagging breasts may result from prolonged nursing after pregnancy. He proceeded to show that a mixture like Developex could not affect the glandular system which controls the bust development or tighten or shorten the fibrous supporting bands of breasts which have been stretched by overlactation. Hence, he testified, the product is worthless for effecting any change in the size or contour of the breasts.

"Thin or unshapely" legs, this witness further testified, may be due to any one of many causes such as underweight, undernourishment, debilitating, chronic diseases, hereditary influences, glandular disorders, mineral and vitamin deficiency, bony deformities, bowlegs, knock-knees, misshapen feet and other factors. Developex of itself, he pointed out, would have no effect on the size or shape of the legs or on any disorder which might cause the legs to be thin or unshapely because it would not build up the tissues or affect the fat deposits in the body, since any absorption which it might bring about through the skin would be inconsequential.

As a result of the foregoing evidence, the Post Office on Nov. 27, 1941 issued a fraud order against the Developex Company of Brooklyn, Theodore Margolin and their officers and agents. On the same date a similar order was brought against the Legalure Company of Brooklyn and its officers and agents. The Legalure name was the trade style under which Margolin had promoted "Legalure Method," another nostrum that was supposed to make unsightly legs attractive. Its advertising blurbs were similar to those of Developex. When this case, after several postponements, finally reached a hearing on Aug. 8, 1941 neither Margolin nor any one representing him appeared to offer a defense, though a written answer denying the charges of fraud had been submitted. A government chemist who had analyzed the cream which constituted the "treatment" testified that it consisted of a white, oily ointment of which 1.1 per cent was camphor, 8.37 per cent water and the rest fats, oils and wax, with a trace of perfume. Hence it seems to have been similar to, if not entirely identical with, Margolin's other "leg beautifier," Developex.

An expert medical witness for the government gave testimony regarding this second "leg developer" and showed it to be equally worthless. He stated further that the use of the Legalure Method might even prove dangerous to the user in instances in which diseases causing unattractive legs might call for exercises, and these the customer might neglect in favor of Legalure. Altogether the treatment was shown to be as worthless as Developex, and hence the companion fraud order against it.

But Margolin had by no means run out of anatomy for correction. Though forbidden longer to pretend to beautify America's busts and legs, he could at least claim to reduce the obese and adorn the bald—until the Post Office again might catch up with him. Soon he was angling for the two most gullible types of suckers—the fat woman who yearns for svelt lines and the bald-headed man who hopes for a hair restorer.

As an illustration of his total disregard for Post Office fraud orders, ". . . Margolin, having been advised that a fraud order was issued against Thinalax Co., at Jersey City, New Jersey, on February 10, 1941, and that another fraud order was issued against Grohair Company, at Jersey City, New Jersey, on February 15, 1941, both of which concerns were at that time owned by one Harry Hitter, purchased from said Hitter the stock in trade of said concerns, including the products known as 'Thinalax' and 'Grohair,' the mailing lists of said concerns, and the names and addresses of all persons who had been provided with the advertising literature of said concerns. . . ."

Hitter's nostrum "Thinalax" was reported by a government chemist to consist of pink coated pills whose essential constituents were extracts of belladonna and cascara sagrada with aloin, podophyllum and oleoresin of ginger. Although the advertising gave the impression that the user of these pills would not have to follow a diet, the treatment was accompanied by a "Slenderizing Menu for the Week" which prescribed what the Post Office called "an extremely limited dietary, both as to quantity and character of food permitted." A physician who testified for the government at the hearing of this case declared that the diet list in question amounted to a starvation regimen. He further testified that among other things the use of these pills would tend to produce a laxative habit—one of the conditions that the promotor warned against in the directions that came with the pills! Less than ten months later, on Dec. 3, 1941, a Post Office fraud order was issued which barred Margolin's Thinalax Company from the mails.

Hitter's nostrum "Grohair" was promoted with representations that it would grow a full head of hair on any one who used it, "no matter what condition" the user's hair was in or even if he was completely bald. According to the government chemist who analyzed it, the stuff was a hydroalcoholic liquid containing about 14 per cent of kerosene, 15 per cent of castor oil and 0.11 per cent of betanaphthol with about 60 per cent of alcohol, the remainder being water. Grohair was the second of Hitter's swindles to be scotched by a Post Office fraud order, which was issued on Feb. 15, 1941. Some time thereafter, it is reported, the business was taken over by Margolin, who purchased from Hitter all of the stock in trade, mailing lists and names of customers, just as he had done with Hitter's Thinalax Company. But, as in his experience with the latter business, a fraud order put an end to his Grohair enterprise, on Dec. 3, 1941.

From the record, do not be surprised to find Margolin blossoming out some time with a "cure" for projecting rears or flapping ears. And then of course the Post Office Department will investigate and there will be another fraud order, and so on and on and on through the years.

Correspondence

VITAMIN K FOR THE NEWBORN

To the Editor:—Is administration of vitamin K to the newborn of clinical value? This question has been answered guardedly by Sanford and associates in THE JOURNAL of February 28 but confidently by Quick in a communication to THE JOURNAL of March 21. The difference of opinion represents the chasm between a clinical and a chemical evaluation of the problem. Not all hemorrhagic manifestations in the newborn are due to acute hypothrombinemia, and not all cases of "hemorrhagic disease of the newborn" are due to diminution in blood prothrombin.

The clotting mechanism may be defective in platelets, leading to thrombocytopenic purpura; in platelet function, leading to thrombopathy; in fibrinogen, leading to fibrinogenopenia; in vascular resistance, leading to allergic, infectious or toxic purpura. The clotting mechanism may be normal, and yet bleeding may occur from vascular injury incident to the birth process. In the past, hemorrhagic disease of the newborn was a syndrome attributed to any defect in the clotting mechanism excluding vascular injury. Today, hemorrhagic disease of the newborn is a disease entity due specifically to prothrombin deficiency. This concept was formulated by me from 9 case reports published in THE JOURNAL Sept. 10, 1932, page 895.

Acute hypoprothrombinemia in the newborn is the only condition that responds promptly to vitamin K therapy. Since the disease occurs in less than 0.5 per cent of all newborn infants it is folly to waste vitamin K on 99.5 per cent of the remainder, even if many of these may show hemorrhagic manifestations! If the latent hemorrhagic tendency present in all newborn infants becomes active, the rise in clotting time will indicate decrease in available prothrombin. Then and only then is vitamin K therapy indicated.

I. NEWTON KUGELMASS, M.D., New York.

To the Editor.—Dr. Sanford and his associates in an article entitled "Is Administration of Vitamin K to the Newborn of Clinical Value?" (THE JOURNAL, February 28, p. 697) seriously question the value of vitamin K in the prophylaxis and treatment of hypoprothrombinemia and associated hemorrhage of the newborn. I am forced to join with Dr. Quick in taking prompt and sharp exception to Dr. Sanford's conclusions.

Early in 1939 in a brief preliminary article my associates and I called attention to the prompt and efficient action of vitamin K in the prevention and treatment of hypoprothrombinemia and hemorrhage in the newborn and have repeatedly stated that hemorrhagic disease would not occur in any infant adequately protected with vitamin K. We have also repeatedly expressed the hope, adequately supported by facts, that infant mortality resulting from intracranial hemorrhage will in the future possibly be materially reduced by this sound therapeutic procedure. Just how well these therapeutic suggestions have proved to be accomplished facts is well attested by the rapidly accumulating literature on this subject. With the single exception of Dr. Sanford there would seem to be complete agreement among all investigators of this subject. As Dr. Quick points out, the efficiency of vitamin K in the prevention and treatment of hemorrhagic disease of the newborn is "unequivocally and emphatically" proved. Having recorded more than two thousand prothrombin time determinations and treated an equal number of infants with vitamin K, I cannot agree with Dr. Sanford in his conclusions. 'I have yet to see recorded a single case of hemorrhagic disease with associated prothrombin deficiency occurring in any infant adequately protected with vitamin K, and it should be emphasized that treated infants now can be numbered in the thousands.

Dr. Sanford's series of only 42 infants treated with vitamin K through the mothers certainly does not justify any discussion concerning the possible reduction in the mortality rate of intracranial hemorrhage. Certainly his figures can hardly be compared with those of Hellman and Shettles (*South. M. J.* 35:289 [March] 1942). Their mortality of 1.9 per cent among 1,042 infants treated through the mother compared to a mortality of 3.9 per cent among 1,206 untreated infants, with the odds against this being an accident 194.7 to 1, is most convincing. Beck, working in three different hospitals, was able to reduce his infant mortality rate by 3:1. Such convincing reports can hardly be accidental.

Dr. Sanford's experience with the rates of hemorrhage in treated and control groups of infants differs considerably from our own observations and those of Beck (*Am. J. Obst. & Gynec.* 41:765 [May] 1941):

	Controls, Cases	Incidence of Hemorrhage, per Cent	Treated, Cases	Incidence of Hemorrhage, per Cent
Sanford.....	982	6.6	711	6.39
Beck.....	1,037	2.9	1,022	0.5
Waddell.....	219	10.4	1,118	1.07

There seems no good reason why Sanford should be able to show any reduction in the rate of cerebral accidents, since in his series the infant was not treated through the mother. Beck's series tells a different story, with 14 instances of intracranial hemorrhage in a group of 1,037 controls as contrasted with 4 instances of intracranial hemorrhage among 1,022 treated infants.

I had the privilege of assisting in a round table discussion of hemorrhage in the newborn at the recent meeting of the American Academy of Pediatrics. Associated with me in these discussions were Drs. Clifford, Poncher and Snelling, all of whom have had intimate experience with the therapeutic efficiency of vitamin K. All four members of this round table discussion were in complete agreement concerning the role of vitamin K in the prevention and treatment of hypoprothrombinemia and hemorrhage in the newborn. These discussions will shortly be published.

I hope, Mr. Editor, in fairness to infants yet to be born and liable to the potential danger of latent hypoprothrombinemia, that you will give this communication early publication. I trust that those members of the medical profession not conversant with the current literature on this subject will not be encouraged to deny to newborn infants a proved and efficient therapeutic agent.

W. W. WADDELL JR., M.D., University, Va.

PHONOGRAPHIC RECORDING OF HEART SOUNDS

To the Editor:—There has been some correspondence in THE JOURNAL in recent weeks about phonographic recording of heart sounds.

For historical interest, I would add that Dr. Richard Cabot made such recordings from Oct. 31, 1925 to Jan. 6, 1926 in New York City with the Columbia Phonograph Company, now the Columbia Recording Corporation. I have some of his old records, which are interesting rather because of their excellent reproduction of Dr. Cabot's voice than for their value in phonocardiography, a characteristic still true of many other such records, though improvements are in progress in the effort to develop this procedure into a practical method of teaching and of recording.

PAUL D. WHITE, M.D., Boston.

Council on Medical Education and Hospitals

CONTINUATION COURSES FOR PRACTICING PHYSICIANS

In accordance with the plan of the Council on Medical Education and Hospitals, advance information concerning continuation courses for practicing physicians available in the various centers is published quarterly. The following list consists of courses beginning during the period April 20-July 20, 1942. It is hoped that this material will be useful to the practicing physician who is planning to take postgraduate work but does not have a ready means of knowing when and where the subjects in which he is interested will be taught. Since many of the classes are necessarily limited, those who contemplate enrolling in any of these courses are urged to communicate as early as possible with the proper executive officer.

H. G. Weiskotten, M.D.,
Secretary, Council on Medical
Education and Hospitals.

Continuation Courses for Practicing Physicians, April 20-July 20, 1942

Institution	Courses Begin	Length and Content of Course	Number of Students Accepted	Registration Fee and/or Tuition	For Detailed Information Write to
ALLERGY					
Harvard Medical School, Courses for Graduates	July 6	Full time, 2 weeks; diagnosis and treatment, prep. of vaccines	6 [1]	$50	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
New York University College of Medicine	May 15	MWF afternoons; lab. technic	Limited [2]	$150	Dr. Currier McEwen, Dean, New York University College of Medicine, 477 First Avenue, New York City
	July 16	MWF afternoons; hypersensitivity 6 mo.			
Tufts Medical School, Post-Graduate Division	May 18	1 week; lectures, clinic demonstrations	Minimum 6	$25 [3]	Dr. Samuel Proger, Chairman, Post-Graduate Division, Tufts Medical School, Boston, Mass.
University of Michigan, Department of Post-Graduate Medicine	May 11	5 days	.....	$10-$25	Dr. James D. Bruce, Chairman, Department of Post-Graduate Medicine, University of Michigan, 1319 E. Ann Street, Ann Arbor, Mich.
University of Pennsylvania, Graduate School of Medicine	Arranged on application	4 weeks, about 80 hours	Individuals [4]	$150	Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medico-Chirurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania
ANATOMY—See also Gynecology, Otolaryngology, Psychiatry and Neurology, and Surgery					
Harvard Medical School, Courses for Graduates	July 6	Full time, 6 weeks; microscopic anatomy	.....	$60 [3,5]	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	60 hours; applied anatomy of the urogenital system	.....	$150 [6]	Dr. J. A. W. Hetrick, Acting Dean, New York Medical College, Flower and Fifth Avenue Hospitals, 5th Ave. at 105th St., New York City
	Arranged on application	60 hours; applied anatomy of ear, nose and throat	.....	$150 [6]	
	Arranged on application	90 hours; applied anatomy of pelvis and abdomen	.....	$250	
	Arranged on application	160 hours; surgical anatomy [7]	.....	$250	
ANESTHESIOLOGY					
Columbia University, including the New York Post-Graduate Medical School	Arranged on application	12 sessions	2-4 [8]	$75 [9]	The Director, Columbia University School of Medicine, 630 East 20th Street, New York City
	When a vacancy occurs	2 weeks, or 3 weeks if desired	1 [8]	$100-$150	
Harvard Medical School, Courses for Graduates	Monthly	Arranged on application	3	$40	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
New York Polyclinic Medical School	1st of any month between Oct. 1 and June 30	Arranged on application	.....	Arranged	Dr. F. H. Dillingham, Executive Officer, New York Polyclinic Medical School, 345 West 50th Street, New York City
New York University College of Medicine	April 20	Full time, 3 weeks; lubalation anesthesia	5	$150	Dr. Currier McEwen, Dean, New York University College of Medicine, 477 First Avenue, New York City
University of Georgia School of Medicine	Arranged on application	Several weeks; training for government service	Limited	None	Dean, University of Georgia School of Medicine, University Place, Augusta, Georgia
BACTERIOLOGY—See also Gastroenterology; Medicine					
Columbia University, including the New York Post-Graduate Medical School	May	Full time, 1 month; practical technic of medical bacteriology	2 [9]	$100	The Director, Columbia University School of Medicine, 630 East 20th Street, New York City
Harvard School of Public Health	May	MWF afternoons, 1 month; applied immunology	Limited [3]	$65 [9]	Dr. C. E. Dribner, Dean, Harvard School of Public Health, 55 Shattuck Street, Boston, Massachusetts
	Arranged on application	Arranged; immunology and the technic of serum study	Limited [3]	$65 [9]	
	Arranged on application	Arranged; research in communicable diseases	Limited [3]	$65 [9]	
New York Polyclinic Medical School	1st of any month between Oct. 1 and June 30	Arranged	Limited [3]	Arranged	Dr. F. H. Dillingham, Executive Officer, New York Polyclinic Medical School, 345 West 50th Street, New York City
BIOLOGICAL CHEMISTRY					
Harvard Medical School, Courses for Graduates	Arranged on application	Arranged; research	.....	Arranged [3,5]	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
Harvard School of Public Health	Arranged on application	Arranged; nutrition	Limited [3]	$65 [9]	Dr. C. E. Dribner, Dean, Harvard School of Public Health, 55 Shattuck Street, Boston, Massachusetts
BRONCHO-ESOPHAGOSCOPY—See also Surgery					
Columbia University, including the New York Post-Graduate Medical School	Arranged on application, Oct.-Apr.	3 weeks; instruments and technic of bronchoscopy	Limited [6]	$250	The Director, Columbia University School of Medicine, 630 East 20th Street, New York City

References will be found on page 1397.

Continuation Courses for Practicing Physicians, April 20-July 20, 1942—Continued

Institution	Course Begins	Length and Content of Course	Number of Students Accepted	Registration Fee and/or Tuition	For Detailed Information Write to
BRONCHO-ESOPHAGOSCOPY—See also Surgery—Continued					
Harvard Medical School, Courses for Graduates	Arranged on application	2 weeks	Limited [6]	$150	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
New York Eye and Ear Infirmary, School of Ophthalmology and Otology	Arranged on application	2 or 6 weeks; broncho-esophagology	4 [6]	$250 [29]	Mabel R. Stewart, Registrar, School of Ophthalmology and Otology, New York Eye and Ear Infirmary, 218 Second Ave., New York City
CANCER					
Tufts Medical School, Post-Graduate Division	Arranged on application	Arranged	Minimum: 4	Arranged	Dr. Samuel Proger, Chairman, Post-Graduate Division, Tufts Medical School, 30 Bennet Street, Boston, Massachusetts
CARDIOLOGY—See also Internal Medicine					
Columbia University, including the New York Post-Graduate Medical School	June 15	Full time, 3 weeks; cardiovascular diseases	4-15 [9]	$75 [9]	The Director, Columbia University School of Medicine, 630 East 20th Street, New York City
Harvard Medical School, Courses for Graduates	July 1	Full time, 1 month; modern diagnosis and treatment of heart disease	20	$150	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	16 biweekly sessions; clinical cardiology and electrocardiography	.....	$100	Dr. J. A. W. Hetrick, Acting Dean, New York Medical College, Flower and 5th Avenue Hospitals, Fifth Ave. at 105th St., New York City
Tufts Medical School, Post-Graduate Division	May 11	Full time, 1 week	.....	$25 [9]	Dr. Samuel Proger, Chairman, Tufts Medical School Post-Graduate Division, 30 Bennet Street, Boston, Mass.
University of Michigan, Department of Post-Graduate Medicine	May 14	Full time, 3 days; diseases of the heart	.....	$10-$25	Dr. James D. Bruce, Chairman, Department of Post-Graduate Medicine, University of Michigan, 1313 East Ann St., Ann Arbor, Mich.
CYSTOSCOPY—See Gynecology, Surgery, Urology					
DERMATOLOGY AND SYPHILOLOGY					
Columbia University, including the New York Post-Graduate Medical School	Enter when vacancy occurs	3 mornings a week for 6 weeks or 3 months; diagnosis and treatment of syphilis	6 per section	$25-$40 [9]	The Director, Columbia University School of Medicine, 630 East 20th Street, New York City
	Enter when vacancy occurs	3 mornings or afternoons a week, 6 weeks or 3 months; clinical	20 per section	$40-$75 [10-6]	
	Enter when vacancy occurs	3 afternoons a week for 6 weeks or 3 months; practical instruction in dermatologic allergy and immunology	3 per section	$40-$75 [9]	
	Enter when vacancy occurs	3 afternoons a week for 6 weeks or 3 months; practical instruction in diagnosis and management of syphilis	3 per section	$40-$75 [9]	
	Arranged on application	3 mornings or afternoons a week, for 6 weeks or 3 months; practical instruction in minor dermatologic surgery	2 per section [9]	$40-$75 [9]	
	Arranged on application	3 mornings or afternoons a week for 6 weeks or 3 months; practical instruction in mycology and animal parasitology as related to disease of the skin	3 per section [9]	$40-$75 [9]	
	Enter when vacancy occurs	3 afternoons a week for 6 weeks or 3 months; practical instruction in physical therapy	3 per section	$40-$75 [9]	
	May 4	Full time, 6 days; seminar in practical dermatology and syphilology	Minimum: 12	$35 [9]	
Harvard Medical School, Courses for Graduates	Every 2 mos.	2 mornings a week, 2 months; clinical mycology	6	$50	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
	Arranged on application	Full time or mornings: general dermatology; afternoons: skin ward work (elective)	Limited [9]	Arranged	
	July	MWF mornings, 1 month; dermatology	.....	$40	
	Monthly	Mornings, 1 month; dermatology	.....	$40	
	May	MW mornings, 1 month; occupational dermatoses	.....	$40	
Harvard School of Public Health	Arranged on application	5 afternoons a week, Saturday mornings; clinical instruction in syphilis	Limited [9]	$65 [9]	Dr. C. E. Drinker, Dean, Harvard School of Public Health, 55 Shattuck Street, Boston, Massachusetts
	Arranged on application	Short course; methods of serological diagnosis	Limited [9]	$65 [9]	
Tufts Medical School, Post-Graduate Division	May 18	1 week; dermatology	Minimum: 6	$25 [9]	Dr. Samuel Proger, Chairman, Post-Graduate Division, Tufts Medical School, 30 Bennet Street, Boston, Massachusetts

References will be found on page 1397.

Continuation Courses for Practicing Physicians, April 20-July 20, 1942—Continued

Institution	Course Begin	Length and Content of Course	Number of Students Accepted	Registration Fee and/or Tuition	For Detailed Information Write to
DIETETICS—See also Biochemistry, Internal Medicine, Medicine					
Tufts Medical School, Post-Graduate Division	Arranged on application	Arranged	4	Arranged	Dr. Samuel Proger, Chairman, Post-Graduate Division, Tufts Medical School, 20 Bennet Street, Boston, Massachusetts
ELECTROCARDIOGRAPHY—See also Cardiology					
Columbia University, Including the New York Post-Graduate Medical School	May 18 May 5	Full time, 5 days TT mornings, 4 weeks; advanced course	Minimum: 4 [2] Minimum: 3 [2]	$50 [2] $30 [2]	The Director, Columbia University School of Medicine, 630 East 68th Street, New York City
Tufts Medical School, Post-Graduate Division	May 11	5 days	Limited [2]	$25 [2]	Dr. Samuel Proger, Chairman, Post-Graduate Division, Tufts Medical School, 20 Bennet Street, Boston, Massachusetts
University of Pennsylvania, Graduate School of Medicine	Arranged on application	5 days, about 20 hours	Individuals [4]	$60	Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medico-Chirurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania
ENDOCRINOLOGY—See also Gynecology, Medicine					
Harvard Medical School, Courses for Graduates	Any time	Daily; diabetes	Physicians welcome	None	Dr. Frank B. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	9 biweekly sessions; endocrine and metabolic disturbances, including diabetes mellitus	.....	$100	Dr. H. A. W. Hetrick, Acting Dean, New York Medical College, Flower & Fifth Ave. Hospitals, 5th Ave. at 105th St., New York City
Tufts Medical School, Post-Graduate Division	May 25	1 week	.....	$25 [2]	Dr. Samuel Proger, Chairman, Post-Graduate Division, Tufts Medical School, 20 Bennet Street, Boston, Massachusetts
University of Pennsylvania, Graduate School of Medicine	Arranged on application	2-4 weeks, about 75 hours; diabetes mellitus	Individuals [4]	$150	Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medico-Chirurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania
ENDOSCOPY—See Gynecology; Surgery					
EPIDEMIOLOGY					
Harvard School of Public Health	Arranged on application	Arranged; special problems	Limited [2]	$25 [2]	Dr. C. E. Dribner, Dean, Harvard School of Public Health, 25 Shattuck Street, Boston, Massachusetts
FORENSIC MEDICINE					
New York University College of Medicine	Arranged on application	Part time (at least 15 hours weekly); courses in necropsy, toxicology, forensic medicine	Limited [2]	$25-$100	Dr. John H. Mulholland, Asst. Dean, New York University College of Medicine, 477 First Avenue, New York City
GASTROENTEROLOGY—See also Anatomy, Internal Medicine, Surgery					
Columbia University, Including the New York Post-Graduate Medical School	May 6	3 hours a week for 12 weeks; gastroscopy	1-4	$75 [2]	The Director, Columbia University School of Medicine, 630 East 68th Street, New York City
	Arranged on application	3 afternoons a week for 2 months; gastroscopy	1 [4]	$200	
Hahnemann Medical College of Philadelphia	Arranged on application	Arranged; gastroscopy, duodenal-biliary drainage, microscopy of bile, bacteriological technic	.....	Arranged	Dr. William A. Pearson, Dean, Hahnemann Medical College, 235 North 15th Street, Philadelphia, Pennsylvania
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	5 sessions; peritoneoscopy	.....	$50 [12]	Dr. J. A. W. Hetrick, Acting Dean, New York Medical College, Flower & 5th Avenue Hospitals, 5th Ave. at 105th Street, New York City
	Arranged on application	10 morning sessions; gastroscopy	.....	$100 [12]	
University of Chicago, The School of Medicine	June 22	3 months; gastroscopy	1	$150	Dr. Victor Johnson, Dean, University of Chicago, The School of Medicine, Chicago, Illinois
"	July 27	2 weeks; gastroscopy	1	$100	
GASTROENTEROLOGY—See also Anatomy, Internal Medicine, Surgery—Continued					
University of Michigan, Department of Post-Graduate Medicine	May 11	5 days	.....	$10-$25	Dr. James D. Bruce, Chairman, Department of Post-Graduate Medicine, University of Michigan, 1313 East Ann Street, Ann Arbor, Michigan
University of Pennsylvania, Graduate School of Medicine	Arranged on application	16 weeks, about 320 hours; clinical	Individual [4]	$400	Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medico-Chirurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania
GASTROSCOPY—See Gastroenterology					
GYNECOLOGY—See also Medicine, Obstetrics, Pathology, Surgery, Urology, Venereal Disease Control					
Columbia University, Including the New York Post-Graduate Medical School	Enter 1st Monday of any month when a vacancy occurs	MWF mornings or afternoons; cystoscopy and endoscopy	6	$75 [2]	The Director, Columbia University School of Medicine, 630 East 68th Street, New York City
	Monthly	10 sessions, 3 mornings or afternoons a week; diagnosis and office treatment	6	$40 [2]	
	Monthly	15 sessions, MWF afternoons; diagnosis and office treatment	6	$60 [2]	
	Enter 1st Monday of any month when a vacancy occurs	24 sessions; TTS mornings; gynecological endocrinology	4 [2]	$100 [2]	
	Arranged on application	4 or more hours weekly for 4 weeks or longer; gynecological pathology	.....	Arranged [2]	
	Arranged on application	12 sessions, TTS mornings, for 4 weeks; surgical anatomy as applied to operative gynecology (cadaver)	2-3 [4]	$200 [2]	

References will be found on page 1397.

Continuation Courses for Practicing Physicians, April 20-July 20, 1942—Continued

Institution	Courses Begin	Length and Content of Course	Number of Students Accepted	Registration Fee and/or Tuition	For Detailed Information Write to
GYNECOLOGY—See also Medicine, Obstetrics, Pathology, Surgery, Urology, Venereal Control—Continued					
Harvard Medical School, Courses for Graduates	June, July	Mornings for 1 month	4 per month [1]	$75	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
	Monthly	10 sessions, 2 mornings and evenings a week; gonorrhea in women	3	$20	
HEMATOLOGY—See also Surgery					
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	24 biweekly sessions; physical diagnosis and hematology, especially in diseases of the thoracic organs	.....	$100	Dr. J. A. W. Hedrick, Acting Dean, New York Medical College, Flower & 5th Avenue Hospitals, 5th Ave. at 105th St., New York City
Tufts Medical School, Post-Graduate Division	July 6	2 weeks	.....	$25 [9]	Dr. Samuel Progar, Chairman, Post-Graduate Division, Tufts Medical School, 20 Bennet Street, Boston, Massachusetts
University of Michigan, Department of Post-Graduate Medicine	May 18	5 days; diseases of blood and blood-forming organs	.....	$10-$25	Dr. James D. Bruce, Chairman, Dept. of Post-Graduate Medicine, University of Michigan, 1313 East Ann Street, Ann Arbor, Michigan
INFANTILE PARALYSIS					
University of Minnesota, The Medical School	Arranged on application	Arranged; Kenny method of treatment	.....	Arranged	Dr. William A. O'Brien, Director, Department of Post-Graduate Education, The Medical School, University of Minnesota, Minneapolis, Minnesota
INTERNAL MEDICINE					
Columbia University, including the New York Post-Graduate Medical School	May 4 [12]	Full time, 4 weeks	10	$100	Secretary for Medical Instruction, The Mount Sinai Hospital, Fifth Ave. at 100th St., New York City
Harvard Medical School, Courses for Graduates	May	Full time, 1 to 4 months [11]	.....	$150 per month	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
Meharry Medical College	June 1	4 sessions, 2 weeks; gastrointestinal disease from nutritional deficiency and cardiovascular diseases	Limited [13]	$20	Dr. Edward L. Turner, President, Meharry Medical College, Nashville, Tennessee
New York University College of Medicine	Monthly, Oct.-May	5 mornings a week for 1 month; practical review	Limited	$50	Dr. Charles H. Naumach, Director, Fourth Medical Division, Bellevue Hospital, 26th Street and East River, New York City
Tufts Medical School, Post-Graduate Division	May 4	4 weeks	.....	$50 [9]	Dr. Samuel Progar, Chairman, Post-Graduate Division, Tufts Medical School, 20 Bennet Street, Boston, Massachusetts
University of Michigan, Department of Post-Graduate Medicine	June 29	4 weeks	.....	$10-$25	Dr. James D. Bruce, Chairman, Department of Post-Graduate Medicine, University of Michigan, 1313 East Ann Street, Ann Arbor, Michigan
MEDICINE					
Columbia University, including the New York Post-Graduate Medical School	May 25	Full time, 5 days; clinical interpretations of laboratory data	Minimum: 4	$25 [9]	The Director, Columbia University School of Medicine, 630 East 20th Street, New York City
	June 1	Full time, 5 days; diseases of the liver and biliary tract	Minimum: 4	$25 [9]	
	May 4	Full time, 4 weeks; intensive course	Minimum: 10	$100	
	May 11	Full time, 5 days; metabolism, including endocrinology and nutrition	Minimum: 4	$25 [9]	
	June 15	Full time, 10 days; symposium on medicine	Minimum: 10	$10 [9]	
New York Polyclinic Medical School	Arranged on application	Full time, 4 weeks; fundamentals of medicine and surgery for general practitioners	.....	$100	Dr. F. H. Dillingham, Executive Officer, New York Polyclinic Medical School, 345 West 50th Street, New York City
Pacific Northwest Medical Association, Meeting at Portland, Ore.	June 17	4 days; physiology, bacteriology, roentgenology, medicine, surgery, urology, military medicine	Limited [16]	$12 [17]	Dr. Clyde W. Countryman, Secretary-Treasurer, Pacific Northwest Medical Association, 627 Riverside Avenue, Spokane, Washington
Tenth Annual Graduate Short Course for Doctors of Medicine	June 22	4 days; medicine, pediatrics, gynecology, surgery, venereal diseases, obstetrics	Limited [15]	$5	Dr. T. E. Cason, Chairman, Medical Post-Graduate Drive Committee, Florida Medical Association, 2650 Riverside Avenue, Jacksonville, Florida
University of Georgia, School of Medicine	June 15	10 days	Limited [18]	None	The Dean, University of Georgia School of Medicine, University Place, Atlanta, Georgia
University of Wisconsin Medical School	April 20	5 days; choice 1 or 2: medicine, pediatrics, surgery, obstetrics and gynecology	20 [19]	$7.50	Dr. Wm. S. Middleton, Dean, University of Wisconsin Medical School, 415 North Randall Avenue, Madison, Wisconsin
MILITARY MEDICINE—See also Medicine					
State of New York Department of Health, Local Health Administration	May	Full time, 2 days; medical aspects of gas warfare	Limited [20]	None	Dr. H. van Ells Hyde, Regional Medical Officer, Second Civilian Defense Region, Office of Civilian Defense, 111 Eighth Avenue, New York City
NEUROLOGY—See Psychiatry and Neurology					

References will be found on page 1397.

Continuation Courses for Practicing Physicians, April 20-July 20, 1942—Continued

Institution	Courses Begin	Length and Content of Course	Number of Students Accepted	Registration Fee and/or Tuition	For Detailed Information Write to
OBSTETRICS—See also Medicine, Pathology, Pediatrics, Public Health					
The Chicago Maternity Center	May	4 months	.....	$30	Dr. Beatrice E. Tucker, Medical Director, The Chicago Maternity Center, 1326 South Newberry Avenue, Chicago, Ill.
Columbia University, Including the New York Post-Graduate Medical School	1st of any month from Jan.-Oct.	Full time for 3 mos.; internship training	.....	$350	The Director, Columbia University School of Medicine, 630 East 68th Street, New York City
	1st of any month	1 month; observation course	.....	$100	
Duke Medical School and Hospital	Arranged on application through July 1st or later	5 days; obstetrics and pediatrics	4-6 [20]	None [21]	Dr. G. M. Cooper, North Carolina State Board of Health, Raleigh, North Carolina
Harvard Medical School, Courses for Graduates	Monthly	1 month or more; clinical	6 [1]	$125	Dr. Frank B. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
Indiana University School of Medicine	Arranged on application	Arranged	10	$10	Dr. C. J. Clark, Chairman, Indiana University School of Medicine, Indianapolis, Indiana
	July 13	Full time, 2 weeks; obstetrics and gynecology	6 [2]	$10 [21, 22]	Dr. C. P. Huber, Director, Post-Graduate Course in Obstetrics, Indiana State Board of Health, 1098 West Michigan Street, Indianapolis, Indiana
Louisiana University Medical Center	June 1	2 weeks; intensive refresher course	Limited [23]	None [21]	Dr. V. E. Webb, Chief, Division of Maternal and Child Health, Louisiana Department of Health, New Orleans, Louisiana
North Dakota State Department of Health (at Center for Continuation Study, U. of Minnesota)	May 11	6 days	4 [24]	None [21]	Dr. William A. O'Brien, Director, Center for Continuation Study, U. of Minnesota, Minneapolis, Minn.
North Dakota State Department of Health (at University Hospital, U. of Iowa, Iowa City)	Weekly, April-June	1 week; obstetrics and gynecology	Limited [2]	None [21]	Dr. Frank J. Hill, Acting State Health Officer, North Dakota State Department of Health, Bismarck, North Dakota
University of Chicago, School of Medicine	May 11	4 weeks	7	$25 [22]	Postgraduate Course, Department of Obstetrics and Gynecology, University of Chicago School of Medicine, 3500 Drexel Avenue, Chicago, Illinois
University of Minnesota, The Medical School	May 12	4 days	60	$25	Dr. William A. O'Brien, Director, Department of Post-Graduate Education, The Medical School, University of Minnesota, Minneapolis, Minnesota
University of Nebraska, College of Medicine	Arranged on application	Full time, 2 weeks; obstetrics, gynecology, pediatrics	2	$10 [22]	Dr. C. W. M. Poynter, Dean, 42 Street & Dewey Avenue, Omaha, Nebraska
OPHTHALMOLOGY—See also Anatomy, Radiology, Surgery					
Columbia University, Including the New York Post-Graduate Medical School	Arranged on application	15 sessions, 2½ hrs. each; longer sessions arranged in units of 12 sessions; embryology, histology and pathology of the eye	Minimum: 1 [4]	$75 [5]	The Director, Columbia University School of Medicine, 630 East 68th Street, New York City
New York Eye and Ear Infirmary, School of Ophthalmology and Otology	1st of any month	Part time for 1 to 3 months	4-6 [2]	$40-$100 [22]	Mabel R. Stewart, Registrar, School of Ophthalmology and Otology, New York Eye and Ear Infirmary, 218 Second Avenue, New York City
Tufts Medical School, Post-Graduate Division	Monthly	MWF mornings	Limited	$50 [5]	Dr. Samuel Proger, Chairman, Post-Graduate Division, Tufts Medical School, 20 Bennet Street, Boston, Massachusetts
University of Illinois, College of Medicine	Arranged on application	Mornings for 4 mos.	10	$75	Mr. George Moon, Asst. to the Dean, University of Illinois College of Medicine, 1853 West Polk Street, Chicago, Illinois
University of Michigan, Department of Postgraduate Medicine	April 23	1 week; ophthalmology and otolaryngology	.....	$10-$25	Dr. James D. Bruce, Chairman, Department of Postgraduate Medicine, University of Michigan, 1313 East Ann Street, Ann Arbor, Mich.
University of Pennsylvania, Graduate School of Medicine	Arranged on application	8 weeks, about 120 hours; ocular refraction	Individuals [4]	$270	Dr. R. C. Borrit, Dean, Graduate School of Medicine, The Medico-Chirurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania
	Arranged on application	8 weeks, about 96 hours; ophthalmic histology and pathology	Individuals [4]	$200	
OTOLARYNGOLOGY—See also Broncho-Esophagoscopy, Ophthalmology, Radiology, Surgery					
Columbia University, Including the New York Post-Graduate Medical School	Enter when vacancy occurs	Arranged; diagnostic procedures	6 per section	$350 (1 sec.) $550 (2 sec.) for 5 weeks [5]	The Director, Columbia University School of Medicine, 630 East 68th Street, New York City
	Arranged on application, Sept.-June	Arranged; dissection of the head and neck	Minimum: 2 [4]	Arranged [5]	
	Arranged on application	15 sessions, 2½ hrs. each; or longer sessions arranged in units of 12 sessions; embryology, histology and pathology of the ear, nose and throat	Minimum: 1 [4]	$75 [5]	
	Arranged on application, Sept.-July	Arranged; surgical anatomy as applied to otology (cadaver)	2-6 [4]	Arranged [5]	

References will be found on page 1397.

Continuation Courses for Practicing Physicians, April 20-July 20, 1942—Continued

Institution	Courses Begin	Length and Content of Course	Number of Students Accepted	Registration Fee and/or Tuition	For Detailed Information Write to
OTOLARYNGOLOGY—See also Broncho-Esophagoscopy, Ophthalmology, Radiology, Surgery—Continued					
	Arranged on application, Sept.-June	Arranged; surgical anatomy as applied to rhinology and laryngology (cadaver)	2-6 [4]	Arranged [9]	
Harvard Medical School, Courses for Graduates	Monthly, except April or August	Full time; clinical otology	2 [3]	$50	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
	Arranged on application, except in April	Full time for 2 wks.; physiology of the cochlea and vestibular apparatus	2	$50	
	May 4	5 days a week for 2 weeks; histopathology of the nose and throat	.....	$100 [3]	
	Arranged on application	Arranged; technic of submucous resection of the nasal septum	Limited	$75 per 5 exercises	
New York Eye and Ear Infirmary, School of Ophthalmology and Otology	1st of any month	Part time for 1 to 3 months; otology	4 [3]	$40-$110 [10]	Mabel R. Stewart, Registrar, School of Ophthalmology and Otology, New York Eye and Ear Infirmary, 218 Second Avenue, New York City
Tufts Medical School, Post-Graduate Division	Monthly	Every morning or MWF mornings for 1 month	.....	$20 for MWF [3] $50 for daily [3]	Dr. Samuel Proger, Chairman, Post-Graduate Division, Tufts Medical School, 39 Bennet St., Boston, Mass.
University of Cincinnati College of Medicine	May 11	Full time for 6 days; operative course (rodaver); otology, rhinology and laryngology	25 [4]	$75 [10]	Dr. Stanley E. Dorst, Dean, University of Cincinnati College of Medicine, Eden and Bethesda Avenues, Cincinnati, Ohio
PATHOLOGY—See also Gynecology, Ophthalmology, Otolaryngology, Psychiatry and Neurology					
Columbia University, including the New York Post-Graduate Medical School	April 21	2 mornings a week for 10 weeks; surgical pathology	Minimum: 4	$45	The Director, Columbia University School of Medicine, 630 East 20th Street, New York City
Harvard Medical School, Courses for Graduates	Arranged on application	Arranged; research	.....	Arranged [2-3]	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
	July 1	1 month; general and surgical	6	$60 [3]	
	Monthly, except August	Full time; pathology of obstetrics and gynecology	2 [4]	$125 [3]	
	Monthly	Arranged; special staining methods, autopsies	4	$40	
New York Polyclinic Medical School	1st of any month between Oct. 1 and June 30	Arranged	Limited [2]	Arranged	Dr. F. H. Dillingham, Executive Officer, New York Polyclinic Medical School, 345 West 50th Street, New York City
University of Michigan, Department of Post-Graduate Medicine	July 13	2 wks; pathology of female genito-urinary organs	.....	$10-$25	Dr. James D. Bruce, Chairman, Department of Post-Graduate Medicine, University of Michigan, 1313 East Ann Street, Ann Arbor, Michigan
	June 29	2 weeks; special pathology of neoplasms	.....	$10-$25	
PEDIATRICS—See also Medicine, Obstetrics, Public Health					
Columbia University, including the New York Post-Graduate Medical School	July	1 month; clinical, lectures and demonstrations	3-6	$40 [3]	The Director, Columbia University School of Medicine, 630 East 20th Street, New York City
	May, June	1 month or longer; clinical, practical work	2-5	$100 [3]	
	July	Full time, 1 month; seminar	3-12	$125 [3]	
Harvard Medical School, Courses for Graduates	July 1 [11]	Full time or mornings, 1 month; review	Limited	Mornings: $85 [3]; full time: $125 [3]	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
Meharry Medical College	June 15	Full time for 2 wks.	Limited [13]	$20	Dr. Edward L. Turner, President, Meharry Medical College, Nashville, Tennessee
University of Minnesota, The Medical School	June 8	3 days; health problems of preschool children	50 [10]	$15	Dr. William A. O'Brien, Director, Department of Post-Graduate Education, The Medical School, University of Minnesota, Minneapolis, Minnesota
PERITONEOSCOPY—See Gastroenterology					
PHYSICAL THERAPY					
New York Polyclinic Medical School	1st of any month between Oct. 1 and June 30	Arranged	Limited [2]	Arranged	Dr. F. H. Dillingham, Executive Officer, New York Polyclinic Medical School, 345 West 50th Street, New York City
PHYSIOLOGY—See also Medicine, Psychiatry and Neurology					
Harvard Medical School, Courses for Graduates	Arranged on application	Arranged; research	.....	Arranged [2-3]	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
PROCTOLOGY—See also Surgery					
Tufts Medical School, Post-Graduate Division	April 27	1 week: proctology I	.....	$25 [3]	Dr. Samuel Proger, Chairman, Post-Graduate Division, Tufts Medical School, 39 Bennet Street, Boston, Massachusetts
	May 4	2 or 4 wks; proctology II (prerequisite: proctology I)	2	2 wks: $50 4 wks: $100	
PSYCHIATRY AND NEUROLOGY					
Columbia University, including the New York Post-Graduate Medical School	Monthly, Oct.-May	5 afternoons a week for 1 month or longer; clinical neurology	1-6	$50 [3]	The Director, Columbia University School of Medicine, 630 East 20th Street, New York City
	Arranged on application, Oct.-June	MW mornings, Friday, for 4 weeks; neuroanatomy	Minimum: 3	$25 [3]	

References will be found on page 1397.

Continuation Courses for Practicing Physicians, April 20-July 20, 1942—Continued

Institution	Courses Begin	Length and Content of Course	Number of Students Accepted	Registration Fee and/or Tuition	For Detailed Information Write to
PSYCHIATRY AND NEUROLOGY—Continued					
Harvard Medical School, Courses for Graduates	May, June	5 mornings a week for 1 month	Minimum: 4	$50	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
	July 6	5 mornings a week for 4 weeks; diagnosis and treatment of language problems	.....	$50 [9]	
	Arranged on application	Arranged; general psychiatry or special fields	Individuals	Arranged	
	Arranged on application	Arranged; neuroanatomy, neurophysiology, neuropathology, clinical neurology, neurosurgery	.....	Arranged	
	Arranged on application	Arranged; research in neuropathology; research in cerebrospinal fluid is elective	Individuals	Arranged [9]	
University of Pennsylvania, Graduate School of Medicine	Arranged on application	360 hours, 6 weeks; clinical psychiatry	Individuals [4]	$160	Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medico-Chirurgical College, 327 Medical Laboratories, Philadelphia, Pennsylvania
	Arranged on application	10 weeks, about 250 hours; clinicobiologic neurology and psychiatry	Individuals [11]	$100	
PUBLIC HEALTH—See also Dermatology and Syphilology; Pediatrics; Venereal Disease Control					
Harvard School of Public Health	Arranged on application	Arranged; research in public health practice	Limited [2]	$65 [9]	Dr. C. K. Drinker, Dean, Harvard School of Public Health, 55 Shattuck Street, Boston, Massachusetts
Postgraduate Institute on Public Health	May 18	2 days; tuberculosis, syphilis, pediatrics, obstetrics	Limited [30]	None	Dr. W. Roderick Brown, Chairman, Post-Graduate Institute on Public Health, 2468 Wylie Avenue, Pittsburgh, Pa.
RADIOLOGY—See also Medicine					
Harvard Medical School, Courses for Graduates	Monthly	Arranged; 3 days a week	3	$35	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
	Monthly	Full time; diagnostic and therapeutic roentgenology	2 [3]	$100	
	Monthly	Full time; general roentgenology	3 [3]	$100	
	Monthly	Full time; use of x-ray in surgical diagnosis and therapy	Limited [2]	$50	
New York Eye and Ear Infirmary, School of Ophthalmology and Otology	1st of any Month	3 mornings a week for 6 weeks; roentgenology for ophthalmologists	2 [3]	$40 [29]	Mabel R. Stewart, Registrar, School of Ophthalmology and Otology, New York Eye and Ear Infirmary, 218 Second Avenue, New York City
New York Polyclinic Medical School	1st of any month between Oct. 1 and June 30	Arranged; roentgenology	Limited [2]	Arranged	Dr. F. H. Dillingham, Executive Officer, New York Polyclinic Medical School, 335 West 50th Street, New York City
RHINOLOGY—See Otolaryngology					
RHINOLARYNGOLOGY—See Surgery					
SURGERY—See also Special Headings					
Columbia University, Including the New York Post-Graduate Medical School	Arranged on application	Part time, 8 sessions, at least 12 hours; blood transfusion; blood and plasma bank	1-8	$35 [9]	The Director, Columbia University School of Medicine, 309 East 20th Street, New York City
	Arranged on application, Sept.-June	12 sessions or more; dissection and surgical anatomy	Minimum: 2 [4]	$125 per 12 sessions [9]	
	July 2	MWF afternoons for 1, 2 or 3 months; proctology	2-4 [4]	$150 for 3 months [9]	
	April 20	1 week, seminar in traumatic surgery	5-30 [4]	$60 [9]	
	Arranged on application, except in July or August	5 sessions; surgical anatomy as applied to colon and rectal surgery (cadaver)	2 [4]	$75 [9]	
	Any month but July and August when class of 2 is formed	4 afternoons a week, 12 sessions; surgical anatomy as applied to general surgery	Limited [4]	$200 [9]	
	Arranged on application, except July and August	12 sessions; surgical anatomy as applied to thoracic surgery (cadaver)	2-6 [4]	$125 [9]	
	(a) May 5-28 (b) June 22-27	(a) Part time, 3 weeks, (b) Full time, 6 days; traumatic surgery	.....	$35 [9]	
Harvard Medical School, Courses for Graduates	June 1	6 mornings a week for 1 month; clinical instruction in nonorthopaedic children's surgical diseases	8	$50	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
	May, June, July	Full time; endoscopy	2	Arranged	
	May, June	Mornings; genitourinary surgery; major and minor operations, use of cystoscope	4 [3]	$75	

References will be found on page 1397.

Continuation Courses for Practicing Physicians, April 20-July 20, 1942—Continued

Institution	Courses Begin	Length and Content of Course	Number of Students Accepted	Registration Fee and/or Tuition	For Detailed Information Write to
SURGERY—See also Special Headings—Continued					
	Monthly	Mornings; genito-urinary surgery	Limited	$50	
	May 4	12 days; principles of plastic operations, surgery on cadaver	Limited	$150	
	June 22	2 weeks; surgical technic	Limited	$225	
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	60 hours; surgical technic (dog)	.....	$250 [4]	Dr. J. A. W. Hetrick, Acting Dean, New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City
New York Polyclinic Medical School	May	4 weeks; plastic reparative surgery	Limited [2]	$150	Dr. F. H. Dillingham, Executive Officer, New York Polyclinic Medical School, 345 West 50th Street, New York City
Tufts Medical School, Post-Graduate Division	May 4	12 days; applied surgical anatomy on cadaver in the evenings, elective	Limited	$150 [2] $175 with evening work	Dr. Samuel Proger, Chairman, Post-Graduate Division, Tufts Medical School, 30 Bennet Street, Boston, Massachusetts
University of Pennsylvania, Graduate School of Medicine	June 15	2 weeks, about 85 hours; bronchoesophagology, gastroscopy and laryngeal surgery	Individuals [4]	$250	Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medico-Chirurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania
	Arranged on application	3 weeks, about 57 hours; ophthalmic operations (cadaver)	Individuals [4]	$270	
	Arranged on application	2 weeks, about 30 hours; otologic operations (cadaver)	Individuals [4]	$250	
	Arranged on application	10 days, about 30 hours; rhinolaryngologic operations (cadaver)	Individuals [4]	$150	
SYPHILOLOGY—See Dermatology and Syphilology, Venereal Disease Control, Gynecology					
TROPICAL MEDICINE					
Columbia University, including the New York Post-Graduate Medical School	May 25	Full time for 5 days	Minimum: 4	$50 [2]	The Director, Columbia University School of Medicine, 309 East 20th New York City
Harvard School of Public Health	Arranged on application	Arranged; medical zoology and tropical medicine [28]	Limited [2]	$65 [2]	Dr. C. K. Drinker, Dean, Harvard School of Public Health, 55 Shattuck Street, Boston, Massachusetts
TUBERCULOSIS—See also Public Health					
Columbia University, including the New York Post-Graduate Medical School	May 4	Full time for 2 wks.; pulmonary tuberculosis	4-20	$50 [2]	The Director, Columbia University School of Medicine, 309 East 20th Street, New York City
Mississippi State Sanatorium	Arranged on application throughout the year	2 weeks or more; clinical medicine and chest diseases	.....	None [27]	Dr. Henry Boswell, Superintendent, Mississippi State Sanatorium, Sanatorium, Mississippi
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	1 month; diagnosis and treatment	.....	$100	Dr. J. A. W. Hetrick, Acting Dean, New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City
UROLOGY—See also Anatomy, Medicine, Pathology, Surgery					
Columbia University, including the New York Post-Graduate Medical School	Arranged on application	Short courses	Individuals [4]	Arranged [2]	The Director, Columbia University School of Medicine, 309 East 20th Street, New York City
Harvard Medical School, Courses for Graduates	Monthly, October through May	1 month; diagnosis management of gonococcus infections, problems of female urology emphasized	.....	$75 per month	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
Joint Committee on Post-Graduate Education	1st of every month	1 month or longer; practical	3	$25 per month	Registrar, Joint Committee on Post-Graduate Education, 1313 Bedford Avenue, Brooklyn, New York
University of Pennsylvania Graduate School of Medicine	Arranged on application	6 weeks, about 36 hours; cystoscopy, chromo-ureteroscopy and pyelography	Individuals [4]	$300	Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medico-Chirurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania
VENEREAL DISEASE CONTROL—See also Gynecology, Dermatology & Syphilology, Medicine, Public Health					
Mobile City Hospital	Monthly, usually 3d week	1 week	Limited [29]	None [21]	Dr. W. H. Y. Smith, Asst. Director, Bureau for the Prevention of Diseases, State of Alabama Department of Health, Montgomery, Alabama
Howard University, College of Medicine	July 1	Full time for 1 quarter	Limited [2,13]	$15 [30]	Dr. John W. Lawlah, Dean, Howard University College of Medicine, Washington, D. C.
University of Pennsylvania, Institute for the Control of Syphilis	On demand or Arranged on application	(a) 1-2 weeks, 35 hours per week (b) Full time for 1 month	(a) 12 (b) Individuals	(a) $25 (b) $50	Dr. John H. Stokes, Director, Institute for the Control of Syphilis, Hospital of the University of Pennsylvania, 3400 Spruce Street, Philadelphia, Pa.

1. Male physicians only.
2. Physicians with adequate preliminary training and/or approved by the post-graduate department are eligible.
3. Registration fee of $5 covers all courses taken within 12 months.
4. Limited to specialists who have had preliminary training and experience.
5. A laboratory fee of about $5 will be added.
6. If 2 or more students register for the course at the same time, a reduction in the fee will be made.
7. Special parts may be taken.
8. Upon application by physicians otherwise unable to meet the expense of post-graduate study, grants to defray part of the tuition are made from a scholarship fund.
9. A bond of $500 is required.
10. If two or more sections are taken, the fee will be reduced.
11. A course for staff members of mental institutions.
12. If taken in conjunction with the next course below/above (Gastroscopy/Peritoneoscopy) the fee for the combined course will be $125.
13. Register two to six weeks in advance.
14. May not be offered.
15. Negro physicians in good standing are eligible.
16. For physicians from Washington, Oregon, Montana, Utah, Province of British Columbia.
17. Members of the several Medical Corps will be admitted free of charge.
18. Applications will be accepted in the order of their receipt.
19. A course for Emergency Medical Service officers and selected physicians.
20. For state physicians. Some out-of-state physicians accepted.
21. State boards of health furnish funds covering tuition fees, maintenance, or transportation for physicians of the state.
22. All or part refunded on satisfactory completion of the course.
23. White registered physicians, practicing in the state.
24. Physicians recommended by the District Medical Societies who have not received a stipend for a course in the same subject within 1 year.
25. Tuition refunded if the war interferes.
26. There are some opportunities to work in hospitals or laboratories situated within the tropics.
27. Out-of-state physicians will be expected to pay their board.
28. Plus a matriculation fee of $5.
29. Plus a matriculation fee of $10.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, April 11, page 1241.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various centers, June 22-24. *Part III.* Various centers, June or July. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral. Groups A and B.* Cleveland, Jan. 14-15, 1943. Final date for filing application is Dec. 7. *Written.* Various centers, Nov. 16. Final date for filing application is Oct. 5. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: June, Philadelphia, in advance of the meeting of the American Medical Association. Application should be on file 6 weeks in advance of the date of oral examination. *Written.* Oct. 19. Final date for filing application is Sept. 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* New York, May 12-13. Sec., Dr. R. Glen Spurling, 404 Brown Bldg., Louisville, Ky.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* Baltimore, June 6, and Philadelphia, June 8. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Oral and Written.* Chicago, Jan. 9-10. Final date for filing application is Nov. 1. Sec., Dr. Guy A. Caldwell, 3503 Prytania St., New Orleans.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, Sept. 18. *Oral.* Chicago, Nov. 2-3. Final date for filing application is July 1. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, December. Final date for filing application is Oct. 1. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Notice to City as Prerequisite to Suit for Malpractice.—The municipal law of the city of New York imposes liability on the city for any damages resulting from the malpractice of a physician while rendering gratuitous services to a person in a public institution maintained by the city. It further provides that no action may be maintained against the city or the physician unless the notice requirements of the law are strictly complied with. Notice of intention to commence an action against the city is required to be served on the city within six months after the cause of action accrues. On July 6, 1937 the plaintiff, a charity patient in the Fordham Hospital, underwent an appendectomy performed by the defendant physician. A gauze pad was left in the plaintiff's abdominal cavity. In January 1938 the presence of the pad was discovered and removed by another physician. Subsequently the plaintiff filed suit against the defendant physician for malpractice and on April 26, 1938, more than two months after the action was commenced, served the required notice on the city. The defendant physician filed a motion to dismiss the complaint and, from an adverse judgment, appealed to the supreme court, appellate division, first department, New York.

The plaintiff admitted that notice had not been served on the city within the required six months period but contended that her substantial compliance with the law was sufficient. She testified that she did not know of the existence of the pad in her abdominal cavity until it was removed in January 1938, and that she was then advised by the physician who removed it that she could not sue because she was a charity patient. She also testified that she underwent a hernia operation in March 1938 and was confined to her home until April 22. The plaintiff argued that these facts excused a strict compliance with the notice provision and that she served the notice as soon as she was able to do so. The appellate division pointed out that in a former appeal of this same case (*Derlicka et al.* v. *Leo et al.*, 22 N. E. (2d) 367, J. A. M. A. **115**:2023 [Dec. 7] 1940) it had been held that a strict compliance with the notice provisions was required in a suit of this nature. Even if a substantial compliance was sufficient, the court added, the plaintiff's proof did not indicate that degree of compliance. Her testimony showed that she was at home and in her right mind on and after March 22, 1938. She could have served the notice then, either personally or by her attorney. The fact that she did not discover the malpractice for some time did not aid her, because the right of action arose at the time the negligent act was committed whether the plaintiff knew of the negligence or not. The judgment for the plaintiff was therefore reversed and the defendant's motion to dismiss granted. The Court of Appeals affirmed the judgment of the lower court in dismissing the complaint.—*Derlicka v. Leo, 19 N. Y. S. (2d) 949 (N. Y., 1940); 31 N. E. (2d) 47 (N. Y., 1940).*

Medical Practice Acts: Use of Heat Treatment by Chiropodists.—Section 24 of the medical practice act of Illinois penalizes any person who holds himself out to the public as being engaged in the diagnosis or treatment of human ailments; or who suggests or prescribes any form of treatment for the cure or relief of any physical or mental ailments of any person with intent of receiving a fee or compensation therefor; or who shall diagnosticate, operate on, profess to heal or treat human ailments or maintain an office for such purpose, if he does not "then possess in full force and virtue a valid license issued by the authority of this state to practice the treatment of human ailments in any manner." The defendants, licensed chiropodists, were charged, in two separate suits which were later consolidated, with having violated the foregoing section in that they applied heat to a patient's arm and treated the blisters which resulted by the use of a hypodermic syringe, a surgical knife and the application of salve. The evidence showed that the complaining witness, accompanied by a friend, went to the defendants' shoe store and that one of the defendants wrapped a hose or cable around her shoulder, arm and wrist and turned on a machine which produced heat. After heat had been applied for some time the cable or hose was removed and it was discovered that four or five blisters had resulted from the treatment. One of the defendants opened two of the blisters with a knife, applied a green salve, bandaged the arm and directed the patient not to remove the bandages for two or three hours. On completion of the treatment, the patient paid the defendant $5 to cover the initial treatment as well as one future treatment. Because of pain caused by the blisters, the patient returned to the defendants for treatment, one of whom then used a hypodermic syringe to draw liquid from the blisters, washed the burns, applied green salve to the sores and again bandaged the arm. From judgments of conviction, which were affirmed by the appellate court, the defendants appealed to the Supreme Court of Illinois.

The defendants first contended that, since they were licensed to practice chiropody, they were not persons who did not possess a license to treat human ailments "in any manner," and were therefore not violating section 24. The Supreme Court held that the defendants had clearly misconstrued the words "in any manner." Those words, said the court, require a person to have a valid license to practice the treatment of human ailments in the manner in which such treatment is practiced. The construction urged by the defendants, continued the court, would authorize a licensed chiropodist to practice surgery, or even the most intricate branches of medical treatment, simply by virtue of his chiropody license. The court therefore held, in effect, that, since the defendants were not licensed to practice as they did, it did not matter what other acts they were entitled to perform. The defendants next contended that a mere isolated instance of treatment did not prove that they were engaged in the practice of medicine. The Supreme Court said, however, that the acts enumerated in section 24 were in the disjunctive and that the commission of any one of them, without possessing the proper license, was a violation of the law. Finally, the defendant contended that the evidence was not sufficient to prove them guilty beyond a reasonable doubt. The Supreme Court held that the trial judge and jury had seen and heard the witnesses and were in a better position to determine their credibility. The mere fact that the defendants' evidence was contradictory to that of the state, said the court, constitutes no grounds for reversal. The judgments of conviction were therefore sustained. —*People v. Friedman (two cases), 29 N. E. (2d) 89 (Ill., 1940).*

Chiropractic: Office Sign an Indication of Practice.—For over a year the defendant had maintained an office for the practice of chiropractic on the ground floor of a building located in the business section of South Tacoma, Wash. On the window facing the street was a sign which read "Thomas F. Bennett, Palmer Graduate, X-Ray, Chiropractic." Similar statements appeared in the classified section of the city telephone directory and on professional cards found in the defendant's reception room. At no time had the defendant possessed a license issued by the state board of chiropractic examiners. Subsequently he was charged with inducing a belief that he was engaged in the practice of chiropractic at a time when he was not licensed. The only witnesses at the trial were two inspectors from the state department of licenses. In addition to the foregoing facts, they testified that they visited and interviewed the defendant in his office on March 4, 1940. While they were waiting in the reception room, the defendant emerged from his private office with a lady to whom he remarked, "I will see you Wednesday." One of the inspectors stated that the defendant admitted that he had no license and that he thought it was unfair to require chiropractors to pass an examination. The other testified that during the interview the defendant said that he did not feel that he needed a license and that in fact he would not accept one if given to him, because a license would not make him capable of performing his work any better. The defendant did not offer any evidence on his own behalf, and the case was submitted to a jury. From a verdict of guilty and a judgment thereon the defendant appealed to the Supreme Court of Washington.

The defendant contended that the judgment should not stand because there was no proof that he had in fact performed any manual operation on a patient or that any one had been induced to believe that he was engaged in the practice of chiropractic. Section 10109 of Remington's Revised Statutes of the State of Washington provided:

> Any person who shall practice or attempt to practice chiropractic, . . . or who shall use the title chiropractic, D.C., Ph.C., or any word or title to induce belief that he is engaged in the practice of chiropractic without first complying with the provision of this act, . . . shall be guilty of a misdemeanor. . . .

The court held that the jury was warranted in inferring not only that the defendant induced such a belief but that his inducement was successful. The defendant could not have maintained an office for so long a period without patients, continued the court, he could not have had patients unless they thought he was engaged in practice, and his advertisements could not have become known to the public unless they had been exposed as they were. The court therefore concluded that the defendant had induced a belief that he was engaged in the practice of chiropractic. The judgment of conviction was therefore affirmed.—*State v. Bennett, 107 P. (2d) 344 (Wash., 1940).*

Privileged Communications: No Waiver Implied by Statement in Application for Insurance; Admissibility of Autopsy Finding.—In his application for a life insurance policy with the defendant company, dated Oct. 6, 1933, the insured stated that he had never been under observation or treatment in any hospital, that he had never been treated for ulcer or diseases of the stomach and that no physician had treated him during the past five years. In reliance on the information stated in the application, the defendant issued a policy to the insured without requiring a medical examination. The insured died on July 21, 1935. In a subsequent suit by the beneficiary, the defendant resisted payment because of alleged false representations in the application. At the trial the defendant offered to introduce the testimony of a physician who claimed to have treated the deceased for peptic ulcer within five years prior to the date of the application. It offered another witness to testify that, within the same period, the deceased spent at least one night in a hospital. Finally it offered to show that the cause of death, as found by an autopsy, was a perforated duodenal ulcer. The admission in evidence of all this testimony was denied on the ground that it was within the protection of the laws of Iowa relating to privileged communications. The trial court directed a verdict for the plaintiff, and the defendant appealed to the Supreme Court of Iowa.

The defendant contended that any privilege which might have existed against the admission of such testimony had been waived by virtue of the representations made by the deceased in his application for insurance and that the defendant had the right to offer evidence showing that such representations were not true. Concerning the testimony of the physician who had treated the deceased for peptic ulcer, the Supreme Court refused to hold that the privilege had been waived. The general rule, said the Supreme Court, should be that, when it appears that the relationship of physician and patient existed, the bar of the statute should be held applicable. The defendant, the court pointed out, could have inserted in the application an express waiver of the privilege or it could have required the insured to submit to a physical examination by its own physician. Since it did neither, it was bound by the existing statutory law relating to privileged communications.

The trial court erred, however, in the opinion of the Supreme Court, in refusing to permit a physician to testify that he had attended the insured within the five year period and that he took him to a hospital. That the physician attended the insured and prescribed for him involved no disclosure of any information obtained professionally. Testimony as to the cause of death as disclosed by the autopsy likewise was not privileged and should have been admitted. The relationship of physician and patient ends, the court pointed out, with the death of the patient. The judgment for the plaintiff was therefore reversed and the case remanded.—*Cross v. Equitable Life Assur. Soc. of the United States, 293 N. W. 464 (Iowa, 1940).*

Charitable Hospitals: Liability for Injuries to Special Nurse Employed by Pay Patient.—The plaintiff was a special nurse employed to care for a pay patient in the Georgetown University Hospital, which was owned and operated by the defendant corporation, an eleemosynary institution. While so employed she was seriously and permanently injured by the negligence of a student nurse in the regular employ of the hospital. The evidence showed that the hospital was one of the charitable activities conducted by the defendant and that the defendant had an insurance policy to protect itself from any loss imposed in a tort action arising out of the operation of the hospital. In a suit for damages against the defendant the jury found for the plaintiff, so the defendant filed a motion for judgment notwithstanding the verdict. The motion was heard in the district court of the United States for the District of Columbia.

The defendant contended that it was immune from liability either because it was a charitable institution or because the plaintiff was a beneficiary of the charity and therefore precluded from recovering for her injuries. The district court reviewed the history and development of the "total immunity" theory as applied to charitable institutions, from the early English cases down to the most recent decisions in this country, and held that the doctrine applied only to persons who had actually been the recipients of the bounty of an eleemosynary institution. The defendant then argued that the pay patient who employed the plaintiff was a beneficiary and that the plaintiff partook of the same status. The court said that, even assuming that the patient was a beneficiary, it did not follow that the plaintiff stood in a like relationship. Furthermore, many cases have held that a hospital is liable to a pay patient. Finally the defendant insisted that the plaintiff became a beneficiary of the defendant's charity, independently of her relationship to the patient, when she was permitted to enter on and use the defendant's premises to carry on her vocation as a nurse. To this argument the court answered that the hospital was established and maintained to provide "care and medical attention for suffering humanity," not to furnish a place for the employment of trained nurses. They were not the objects of its beneficent efforts even though the presence of trained nurses specially employed by individual patients may be essential to a hospital in fulfilling its merciful aims. Prior cases have held, the court pointed out, that the following persons were strangers to the charity of an eleemosynary institution and therefore not barred from recovering damages: a special nurse, a doctor attending a patient, a visiting husband, a visiting wife, a visiting friend, and a WPA carpenter temporarily working in a building of a charitable institution. The court therefore concluded that the defendant was not immune from liability for tortious injuries to a special nurse caring for

a pay patient in its hospital, and judgment was entered for the plaintiff on the verdict.—*Hughes v. President and Directors of Georgetown College, 33 F. Supp. 867 (1940).*

Medical Practice Act: Statutory Procedure for Revocation of License Must Be Strictly Construed.—The petitioner, a duly licensed physician in the state of New York, was charged with fraud and deceit in the practice of his profession. The charges were first heard, as required by the Education Law, by a subcommittee of the Committee on Grievances appointed by the Board of Regents of the University of the State of New York. The subcommittee reported its recommendations to the Committee on Grievances, which determined on the merits that the petitioner was guilty. Subsequently the Board of Regents followed the recommendations of the Committee on Grievances and suspended, for two years, the petitioner's license to practice medicine. From such action of the Board of Regents, which was approved by the Supreme Court, appellate division, third department, New York, the petitioner appealed to the Court of Appeals of New York.

The petitioner contended that the action of the Committee on Grievances was void because it was not strictly pursuant to statute. The law provides that after the subcommittee has heard the charges and reported to the Committee on Grievances, that committee ". . . shall determine said charges upon their merits (the vote of each member of said committee to be recorded as part of the committee's findings) . . ." It appeared from the record in this case that the entire Committee on Grievances, consisting of ten members, met on Dec. 1, 1938 to determine the petitioner's guilt or innocence. The minutes of that meeting, however, show that only nine members voted, one member being recorded as "not voting." The respondent, Board of Regents of University of State of New York, contended that the lack of unanimity in the December 1 vote was legalized by a unanimous vote on Jan. 5, 1939, concerning the form of disciplinary action to which the petitioner should be subjected. The Court of Appeals refused to sustain that contention, however. It pointed out that rigid qualifications were required to be met before a license to practice medicine could be obtained and that such a license, when obtained, was a valuable right that could only be taken away by following a strict statutory procedure. Since the statute required a unanimous vote by the Committee on Grievances, concluded the court, a determination of the petitioner's guilt on the basis of a nonunanimous vote did not comply with the mandatory requirements prescribed by the legislature. The order revoking the petitioner's license was accordingly reversed.—*Hilfer v. Board of Regents of University of State of New York, 28 N. E. (2d) 848 (New York, 1940).*

Accident Insurance: Carbon Monoxide Gas as "Poison."—The defendant issued a life insurance policy which provided for the payment of double indemnity if the insured suffered an accidental death not resulting directly or indirectly from poison. During the life of this policy the insured died as a result of accidental inhalation of carbon monoxide gas. In a subsequent suit by the beneficiary to recover under the double indemnity provision, the plaintiff introduced evidence tending to show that death due to the inhalation of carbon monoxide gas is the result of asphyxiation, not poison. A physician called by the plaintiff testified that carbon monoxide, when inhaled, combines with the hemoglobin in the blood and thus prevents the absorption of oxygen and its circulation throughout the body. The result was similar to death by drowning, he said, where there is suffocation because of an insufficient supply of oxygen. Furthermore, he continued, poisons are substances which, when they enter the body, destroy the tissues in whole or in part, but carbon monoxide destroys neither tissues nor cells. In conclusion, this witness stated that death resulting from the inhalation of carbon monoxide is due to asphyxia, anoxemia, lack of oxygen in the blood; not from its poisonous action. "It [carbon monoxide gas] isn't a poison. It isn't a poisonous gas. It doesn't destroy tissue." The defendant offered no testimony but cited many dictionaries, encyclopedias and medical works referring to carbon monoxide as a poisonous gas and to its effect as carbon monoxide poisoning. The lower court entered a judgment for the plaintiff, and the defendant insurance company appealed to the Supreme Court of Missouri, Division No. 1.

The defendant contended in effect that the fact that carbon monoxide is a poison is of such common knowledge that expert testimony should not have been admitted in an attempt to prove otherwise and that the deceased should be held, as a matter of law, to have died from poison. With this contention, the Supreme Court disagreed. In the first place, if the defendant had intended to deny a recovery for death resulting from asphyxiation by gas, the court pointed out, it could easily have so stated in the policy. The test of the meaning of words commonly used should be their ordinary and popular meaning; they should not be construed in the broadest sense possible to include meanings to which they would not be applied by most people. The court expressed agreement with the Supreme Court of Michigan as stated in *Kingsley* v. *American Central Life Ins. Co.*, 259 Mich. 53, 242 N. W. 836, that "the natural obvious meaning of the word 'poison'—that understood by people at large"—would not include "asphyxiation" from inhaling carbon monoxide gas. Most persons, continued the court, consider a poison as being a potion containing a deadly ingredient. Webster's New International Dictionary so defines it. On the other hand, Webster's definition of asphyxia does not mention poison. The judgment for the plaintiff was accordingly affirmed, with certain modifications.—*Cleaver v. Central States Life Ins. Co., 142 S. W. (2d) 474 (Mo., 1940).*

Workmen's Compensation Acts: Cancer Attributed to Trauma.—The deceased, an employee of the Macon County Coal Company, was struck by some dislodged rock, sustaining lacerations of his lip, chin and scalp, a fractured pelvis with upward and inward displacement and a rupture of the urethra at the bladder neck. He received periodic hospitalization and medical treatment for about nine months, when a blood count showed secondary anemia. Six days later a roentgenogram disclosed a cancer of the stomach; about three months later he died. Subsequently the petitioner, wife of the deceased, was granted an award by the industrial commission, but that award was reversed on appeal to the circuit court. The petitioner appealed by writ of error to the Supreme Court of Illinois.

The employer contended that the deceased's death was caused by preexisting cancer, but the petitioner insisted that the cancer was caused by the injury which her husband had received. A physician who testified for the employer admitted that the deceased died as a result of the cancer and that trauma is a cause of cancer. He then stated, however, that he had never seen a traumatic cancer of the stomach and concluded that the deceased did not have one. This opinion was based on the absence of any injury to the deceased in the vicinity of his stomach; the evidence showed, however, that there were bruises on the deceased's hip and abdomen after the accident. The experts who testified on behalf of the plaintiff definitely stated that there was a causal connection between the deceased's injuries and the cancer. One of them, in answer to a hypothetical question, said positively that the deceased's cancer was caused by the injuries he had received. The witness further stated that in his medical practice he had treated traumatic cancer and that, although he himself had seen no traumatic stomach cancers, medical opinion agrees that they do develop and that actual cases have been reported. Ruptures causing stomach cancers, he explained, result from trauma to the pelvic portion of the abdomen and they frequently occur in a section of the abdominal cavity not directly injured.

The Supreme Court admitted that it was difficult for lay persons to decide this question when the opinions of the medical experts were so conflicting, but it held that the evidence was sufficient to sustain the decision of the industrial commission. The deceased was shown to have been healthy prior to the accident and he grew progressively ill following it. He received severe injuries, "an admittedly recognized cause of cancer," in the region where his cancer was located. The Supreme Court therefore concluded that the evidence was competent to establish that the impaired health and the subsequent death were the result of the accidental injuries. The judgment appealed from was accordingly reversed and the award of the industrial commission confirmed.—*Macon County Coal Co. v. Industrial Commission, 29 N. E. (2d) 87 (Ill., 1940).*

Society Proceedings

COMING MEETINGS

American Medical Association, Atlantic City, N. J., June 8-12. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

Alabama, Medical Association of the State of, Montgomery, Apr. 21-23. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association for the Study of Allergy, Atlantic City, N. J., June 8-9. Dr. J. Harvey Black, 1403 Medical Arts Bldg., Dallas, Texas, Secretary.

American Association for the Study of Goiter, Atlanta, Ga., June 1-3. Dr. Thomas C. Davison, 478 Peachtree St. N.E., Atlanta, Ga., Secretary.

American Association for the Study of Neoplastic Diseases, Winston-Salem, N. C., April 23-25. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.

American Association for the Surgery of Trauma, Boston, June 4-6. Dr. Gordon M. Morrison, 520 Commonwealth Ave., Boston, Secretary.

American Association of Genito-Urinary Surgeons, Hershey, Pa., May 27-29. Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary.

American Association of the History of Medicine, Atlantic City, N. J., May 3-5. Dr. Henry E. Sigerist, 1900 East Monument St., Baltimore, Secretary.

American Association on Mental Deficiency, Boston, May 13-16. Dr. Neil A. Dayton, 100 Nashua St., Boston, Secretary.

American Broncho-Esophagological Association, Atlantic City, N. J., June 8-9. Dr. Paul H. Holinger, 700 North Michigan Blvd., Chicago, Secretary.

American College of Chest Physicians, Atlantic City, N. J., June 6-8. Dr. Paul H. Holinger, 500 North Dearborn St., Chicago, Secretary.

American College of Physicians, St. Paul, Apr. 20-24. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.

American Dermatological Association, Hot Springs, Va., May 31-June 4. Dr. Harry R. Forster, 208 East Wisconsin Ave., Milwaukee, Secretary.

American Federation for Clinical Research, Minneapolis, Apr. 20-21. Dr. Thomas M. Durant, 3401 North Broad St., Philadelphia, Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., June 8-9. Dr. J. Arnold Bargen, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Heart Association, Atlantic City, N. J., June 5-6. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.

American Human Serum Association, Atlantic City, N. J., June 8. Dr. Maurice Hardgrove, 3321 North Maryland Ave., Milwaukee, Secretary.

American Laryngological Association, Atlantic City, N. J., May 25-27. Dr. Charles J. Imperatori, 108 East 38th St., New York, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, N. J., June 1-3. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Medical Women's Association, Atlantic City, N. J., June 6-7. Dr. Ada Chree Reid, 102 East 22d St., New York, Secretary.

American Neurological Association, Chicago, June 4-6. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 1-3. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

American Orthopedic Association, Baltimore, June 3-6. Dr. Charles W. Peabody, 474 Fisher Bldg., Detroit, Secretary.

American Otological Society, Atlantic City, N. J., May 28-29. Dr. Isidore Friesner, 101 East 73d St., New York, Secretary.

American Pediatric Society, Sky Top, Pa., Apr. 30-May 2. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.

American Proctologic Society, Atlantic City, N. J., June 7. Dr. William H. Daniel, 1930 Wilshire Blvd., Los Angeles, Secretary.

American Psychiatric Association, Boston, May 18-22. Dr. Winfred Overholser, St. Elizabeths Hospital, Washington, D. C., Secretary.

American Radium Society, Atlantic City, N. J., June 8-9. Dr. Axel N. Arneson, 4932 Maryland Ave., St. Louis, Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 4. Dr. Eugene M. Landis, University of Virginia Hospital, Charlottesville, Va., Secretary.

American Society of Clinical Pathologists, Philadelphia, June 5-7. Dr. Alfred S. Giordano, 531 North Main St., South Bend, Ind., Secretary.

American Therapeutic Society, Atlantic City, N. J., June 5-6. Dr. Oscar B. Hunter, 1833 Eye St. N.W., Washington, D. C., Secretary.

American Urological Association, New York, June 1-4. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.

Arizona State Medical Association, Prescott, May 25-30. Dr. W. Warner Watkins, 15 East Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Hot Springs National Park, Apr. 27-29. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association for the Study of Internal Secretions, Atlantic City, N. J., June 8-9. Dr. Henry H. Turner, 1200 North Walker St., Oklahoma City, Secretary.

Association of American Physicians, Atlantic City, N. J., May 5-6. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

California Medical Association, Del Monte, May 4-7. Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary.

Connecticut State Medical Society, Middletown, June 3-4. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Georgia, Medical Association of, Augusta, Apr. 28-May 1. Dr. E. D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.

Illinois State Medical Society, Springfield, May 19-21. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.

Kansas Medical Society, Wichita, May 11-14. Mr. C. G. Munns, 112 West Sixth St., Topeka, Executive Secretary.

Louisiana State Medical Society, New Orleans, Apr. 27-29. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 28-30. Dr. Richard T. Shackelford, 1211 Cathedral St., Baltimore, Secretary.

Massachusetts Medical Society, Boston, May 26-27. Dr. Michael A. Tighe, 8 Fenway, Boston, Secretary.

Medical Library Association, New Orleans, May 7-9. Miss Anna C. Holt, 25 Shattuck St., Boston, Secretary.

Mississippi State Medical Association, Jackson, May 12-14. Dr. T. M. Dye, P. O. Box 295, Clarksdale, Secretary.

Missouri State Medical Association, Kansas City, Apr. 27-29. Mr. E. H. Bartelsmeyer, 634 North Grand Blvd., St. Louis, Executive Secretary.

National Gastroenterological Association, New York, June 3-5. Dr. G. Randolph Manning, 1819 Broadway, New York, Secretary.

National Tuberculosis Association, Philadelphia, May 6-9. Dr. Charles J. Hatfield, 1790 Broadway, New York, Secretary.

Nebraska State Medical Association, Omaha, May 4-7. Dr. R. B. Adams, 416 Federal Securities Bldg., Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 12-13. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, Apr. 21-23. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

New York, Medical Society of the State of, New York, Apr. 27-30. Dr. Peter Irving, 292 Madison Ave., New York, Secretary.

New York State Association of Public Health Laboratories, Cooperstown, May 18. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.

North Carolina, Medical Society of the State of, Charlotte, May 11-13. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Jamestown, May 18-20. Dr. L. W. Larson, 221 Fifth St., Bismarck, Secretary.

Ohio State Medical Association, Columbus, Apr. 28-30. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.

Oklahoma State Medical Association, Tulsa, April 22-24. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Executive Secretary.

Pacific Coast Oto-Ophthalmological Society, Portland, Ore., May 11-14. Dr. C. Allen Dickey, 450 Sutter St., San Francisco, Secretary.

Rhode Island Medical Society, Providence, June 3-4. Dr. William P. Buffum, 122 Waterman St., Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., May 2. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.

South Carolina Medical Association, Myrtle Beach, May 19-21. Dr. Julian P. Price, 105 West Cheves St., Florence, Secretary.

South Dakota State Medical Association, Sioux Falls, May 13-15. Dr. Clarence E. Sherwood, 107½ Egan Avenue South, Madison, Secretary.

Texas, State Medical Association of, Houston, May 11-14. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

CENTRAL SOCIETY FOR CLINICAL RESEARCH

Fourteenth Annual Meeting, Held in Chicago, Nov. 7 and 8, 1941

The President, Dr. LAWRENCE D. THOMPSON, St. Louis, in the Chair

(Concluded from page 1324)

Further Experimental and Clinical Studies on Gramicidin

DRS. WALLACE E. HERRELL and DOROTHY HEILMAN, Rochester, Minn.: The bacteriostatic effect of gramicidin and tyrocidine, the two substances obtained from a soil bacillus, has been studied by the tissue culture technic. Small amounts of gramicidin (0.0005 to 0.0025 mg.) inhibited the growth of all strains of pneumococci tested. Slightly larger amounts (0.005 to 0.01 mg.) were required to inhibit strains of hemolytic streptococci, whereas still larger amounts were necessary to prevent growth of Streptococcus faecalis, Streptococcus salivarius and the staphylococcus. Tyrocidine is much less effective than gramicidin against all of these organisms. We observed earlier that gramicidin was extremely hemolytic even in small amounts. Dubos reported that small amounts of dextrose would prevent the hemolysis produced by gramicidin. Subsequent studies in our laboratory reveal that after twenty-four hours of incubation 1 microgram per cubic centimeter of gramicidin will cause complete hemolysis of 1 per cent suspension of sheep erythrocytes in the presence of 184 mg. of dextrose per hundred cubic centimeters. No hemolysis was observed in preparations containing 1 microgram of gramicidin per cubic centimeter in the presence of 396 mg. of dextrose per hundred cubic centimeters after twenty-four hours of incubation. However, amounts of dextrose as high as 1,960 mg. per hundred cubic centimeters did not prevent hemolysis from occurring in twenty-four hours in preparations containing 100 micrograms of gramicidin per cubic

centimeter. The amounts, therefore, of dextrose necessary to prevent hemolysis are entirely out of the physiologic range.

Studies on cytotoxicity have been made with an amount of gramicidin (5 micrograms per cubic centimeter of tissue culture mediums) which is bacteriostatic for pneumococci and hemolytic streptococci. This amount does not appear to inhibit the migration of lymphocytes or macrophages or to inhibit the normal growth of fibroblasts. Since this amount of gramicidin is actively hemolytic for erythrocytes suspended in the same medium, it appears that the hemolytic effect of gramicidin accounts for a good deal of its toxicity for animals.

For clinical purposes the crude substance tyrothricin has been used. Because of the apparent toxicity, it has not been administered by mouth or intravenously. The substance has been applied locally and has been instilled into body cavities, including the paranasal sinuses, the urinary bladder and the pleural cavity. In general, lesions infected with hemolytic streptococci and Str. faecalis have responded more favorably than conditions in which staphylococci were present. This parallels the results noted in the bacteriostatic studies. The preparation used was a solution containing 400 micrograms of tyrothricin per cubic centimeter. Tyrothricin has been used in treatment in 50 clinical cases. In 14, sinusitis was present. In 6 cases of cystitis and 4 of empyema, tyrothricin was used in treatment. The remainder of the cases formed a miscellaneous group including cases of infected postoperative wounds, infectious dermatoses and stasis ulcers. The response was somewhat irregular, but for the purpose of analysis the results fall into three general groups: good, fair and poor. The results could be considered good in less than half (43 per cent) of the cases. Clinical results could be considered no more than fair or temporary in a fourth (25 per cent) of the group. Failures or poor results were observed in a third (32 per cent) of the cases.

Use of Sulfaguanidine in Nonspecific Ulcerative Colitis and Other Infections of the Bowel

Dr. Joseph B. Kirsner, Enid C. Rodaniche, Ph.D., and Dr. Walter L. Palmer, Chicago: Sulfaguanidine was found by Marshall and his co-workers to be fairly soluble in water and poorly absorbed from the bowel and to reduce the number of coliform organisms in the feces of mice. Large quantities of this drug were given by us to a series of 20 patients, including 12 with nonspecific ulcerative colitis, 2 with acute bacillary dysentery, 2 with lymphogranuloma venereum of the bowel and 4 with miscellaneous infections of the intestinal tract.

Sulfaguanidine, while not as readily absorbed from the bowel as other sulfonamide derivatives, was, nevertheless, absorbed to some extent; when 10 to 15 Gm. of the drug was given daily the level of total sulfaguanidine in the blood reached 10 mg. per hundred cubic centimeters. The bacterial count of the feces usually was decreased considerably and the flora transformed from one predominantly coliform in type to one composed entirely of gram-positive organisms. The bacterial content of the feces increased rapidly when chemotherapy was discontinued.

Toxic reactions occurred in 4 cases in this series and consisted of localized or generalized cutaneous lesions. Evidence of a toxic effect on the bone marrow was noted in 1 instance. There was usually a decrease in the leukocyte count, and occasionally a diminution in the red cell level occurred. Varying quantities of crystalline N_4-acetylsulfanilylguanidine were found in the urine in cases in which it was sought for.

Sulfaguanidine therapy appears to be of value for acute bacillary dysentery but not for paratyphoid B infection. It apparently has no advantage over other sulfonamide derivatives in the treatment of lymphogranuloma venereum. The continued use of sulfaguanidine over a long period may be beneficial in the treatment of chronic nonspecific ulcerative colitis.

With regard to bacillary dysentery, we have been much interested in the susceptibility of Shigella paradysenteriae to these sulfonamide drugs in vitro. We have observed that all cultures tested by us grew out within forty-eight hours in a medium containing 200 mg. of sulfaguanidine per hundred cubic centimeters. However, with sodium sulfathiazole organisms of the Flexner group require about twenty days to grow in a medium with a concentration of 20 to 30 mg. per hundred cubic centimeters, but those of the Sonne group are less susceptible to sodium sulfathiazole. They grow out normally in twenty-four hours in a medium containing 1 mg. per hundred cubic centimeters of sodium sulfathiazole, in one week in one containing 80 mg. and in two weeks in one containing 150 mg. These observations would indicate that the bacteria of the Shigella group are less susceptible in vitro to sulfaguanidine than to sulfathiazole.

DISCUSSION

Dr. M. L. Cooper, Cincinnati: I raised a question concerning the high levels of the drug in the blood which Dr. Palmer obtained and the possible influence of ulcerations of the intestinal tract on such high levels. Marshall's studies indicated that the drug is absorbed only slightly from the intestinal tract, produces low levels in the blood and builds up high intestinal drug levels; hence he thought it would be a good therapeutic agent in bacillary dysentery. During the past summer my associates and I observed 1 child with ulcerative colitis. At the time this child was admitted to the hospital he had severe bloody diarrhea; the diagnosis was dysentery, and he was given sulfaguanidine. The following day when we obtained a report regarding the level of the drug in the blood we were surprised to find that it was 10 mg. per hundred cubic centimeters. We had not been obtaining levels in children above 2 mg. The next day the level in the blood was 11.7 mg. Therapy with the drug was then stopped. Further study revealed that the patient had ulcerative colitis. Later the child was again given sulfaguanidine, and high levels in the blood were again obtained. The question then arose regarding the influence of ulcers of the intestinal tract on the absorption of this drug. It seemed likely that the high levels obtained in this child might be due to increased absorption through the ulcerative processes. If ulcerations facilitate greater absorption of sulfaguanidine, it may be that extraordinarily high levels in the blood should lead one to think of the possibility of an ulceration of the intestinal tract when an ulceration may not otherwise be suspected.

Dr. H. Marvin Pollard, Chicago: I should like to ask Dr. Kirsner if in severe ulcerative colitis the patients have had improvement, improvement either in temperature or in the number of stools, and if he noticed an increase in the number of stools in those who did not show improvement.

Dr. Joseph B. Kirsner, Chicago: The mechanism responsible for the high levels of the drug in the blood is not apparent. Dr. Cooper's explanation seems plausible. We have attempted to be cautious in the interpretation of our results in the treatment of ulcerative colitis because it is a disease which is characterized by spontaneous remissions not attributable to specific therapy. We thought that, in the 4 cases in which it was considered that improvement occurred, the drug did have something to do with the improvement. The clinical change was characterized by a return of the temperature to normal and by a decrease in the number of stools. The stools became better formed, and there was also improvement in the proctoscopic appearance of the rectal mucosa. In cases in which improvement did not occur during sulfaguanidine therapy we did not observe an increase in the number of stools.

Combining Drug to Stimulate the Human Colon

Harry F. Adler, Ph.D., and Drs. A. J. Atkinson and A. C. Ivy, Chicago: Four adults with colostomy served as subjects in experiments conducted to find combinations of stimulating drugs which would supplement one another or act synergistically to stimulate the colon. Prostigmine or physostigmine combined with solution of posterior pituitary have supplemcntary action. Prostigmine and ergotamine act synergistically. The simultaneous injection of small amounts of solution of posterior pituitary, prostigmine and ergotamine resulted in strong propulsive and nonpropulsive colon motility with repeated evacuations of gas and material. Most important is the fact that this strong action on the colon was not accompanied by side effects.

DISCUSSION

Dr. Louis N. Katz, Chicago: Did ergotamine increase the effectiveness of propulsion of solution of posterior pituitary and prostigmine? A glance at the tables presented fails to demonstrate that this was so.

DR. ARTHUR J. ATKINSON, Chicago: I am sorry that I did not emphasize that point. Ergotamine did increase the effect of solution of posterior pituitary and prostigmine. Ergotamine of itself did nothing. I did not point out that the effects we obtained with ergotamine and prostigmine were achieved with one-half the dose that we used in the experiment with prostigmine alone. I have not said anything about the clinical application, and it remains to be seen whether combinations of these drugs clinically will produce propulsive motility as it is seen in the normal colon. We are using patients with a normal colon and not those with adynamic ileus or with megacolon.

Treatment of Hepatic Cirrhosis with Choline Chloride and Diet Low in Fat and Cholesterol

DRS. G. O. BROUN and R. O. MUETHER, St. Louis: In experiments on the production of atherosclerosis in rabbits by means of diets high in cholesterol the development of a fatty liver was uniformly observed, and in prolonged experiments a number of animals showed hepatic cirrhosis. Administration of choline decreased the severity of fatty hepatic changes. We observed the experiments of Griffith on the effects of diets low in choline. In rats subjected to such diets a fatty liver develops. Administration of choline will prevent such fatty changes, and administration of the amino acid methionine will give a similar protective action. Addition of cholesterol to low choline diets appears to increase the toxic effects.

On these bases we have been treating patients with hepatic cirrhosis for more than two years by the administration of choline chloride in a dose of 1 Gm. daily and by giving diets low in animal fats and cholesterol. The daily intake of fat was limited to approximately 70 Gm. The protein content of the diet was increased to as much as 100 Gm. daily in cases in which the plasma proteins were depleted. This protein was largely supplied as skimmed milk since casein has a high methionine content. The remainder of the caloric requirement was supplied by carbohydrate. Fish liver oil concentrates were added as supplementary sources of vitamins A and D.

A number of patients with portal cirrhosis of the liver have responded well to this method of treatment. Elimination of ascites, decrease in the size of the liver, increase in plasma proteins with return of the albumin-globulin ratio to a more normal level, improvement in anemia, increased bromsulphalein elimination, raised hippuric acid synthesis and decrease in blood bilirubin and blood cholesterol were among the evidences of clinical improvement secured. Persistence in treatment is necessary. One patient, who had ascites for eighteen months requiring eighty-nine paracenteses, after fourteen months of treatment has remained completely free from ascites for more than ten months. While we have no doubt that the diet alone is beneficial, 1 patient was treated by the use of the diet, diuretics and plasma transfusions for about six months without much improvement. Continuation of the diet with the addition of choline resulted in disappearance of the ascites after this had been present over a year. It has not recurred in the last four months.

DISCUSSION

DR. WALTER L. PALMER, Chicago: The interesting report presented illustrates the importance of trying to do something for patients with cirrhosis of the liver and ascites. The clinical and pathologic evidence that alcohol plays a primary role in cirrhosis of the liver is becoming more convincing. It is difficult to evaluate such factors as choline and cholesterol. We have had in the past year one experience similar to that reported by Dr. Broun, in a patient with cirrhosis and ascites who regained a satisfactory state of health after the institution of a high carbohydrate-low fat diet. In this case, because of certain recent experiments we used brewers' yeast in large quantities. I wonder if Dr. Broun has tried yeast. The question arises whether choline or yeast is of any more value than diet.

DR. HENRY T. RICKETTS, Chicago: Dr. Broun has shown that he can influence ascites by this method. I am not sure, however, that he has shown he can influence cirrhosis, except possibly in the 1 case in which the liver decreased in size. It is difficult to conceive how the administration of choline or a low fat diet could alter the process of fibrosis once it has become firmly established. It is well known that fatty infiltration can be prevented by appropriate means, but how a nodular and fibrotic liver can be reduced in size is a question which needs explanation.

DR. G. O. BROUN, St. Louis: In these cases we have not used yeast in large quantities. In the second case we tried vitamin B concentrates in large quantities for several months. During this period there was no improvement. I admit that the question whether equally good results might be secured by treatment with diet alone is unsettled. We have, however, handled several patients with diet alone, some of whom have improved. It is my impression that these patients as a group have not done as well as those receiving choline also. That remains for future demonstration. Regarding diet, it may be recalled that the second patient was treated with diet alone for many months without improvement, but he seemed to respond when choline was added. The third patient was treated with both choline and diet for several months before there was improvement. I do not think the portion of the liver that has undergone advanced fibrotic changes will be influenced by such treatment as we have used. If the cirrhosis has not gone so far and some portions of healthy tissue remain, it is known that the liver has tremendous regenerative activity. Given favorable conditions, in time the healthy liver tissue may regenerate and some improvement in hepatic function will occur. Of the cases studied, in 2 there was a decrease in the size of the liver. There was also definite improvement in the jaundice in 1. Ascites disappeared in all 4 cases reported.

Relationship of Steroids of Adrenal Cortex to Shock

DR. S. C. FREED, I. SHLESSER and E. LINDNER, Chicago: The adrenal cortex is known to protect the animal against the development of secondary shock after trauma, infection or the administration of pharmacologic agents. Adrenal cortex steroid therapy has been suggested for use in the treatment of these conditions. There is evidence that the response of the peripheral vascular system is involved in this relationship. For this reason adrenal cortex preparations were studied for their effect on capillary permeability by Menkin's "leukotaxine" method. Crystalline corticosterone and commercial adrenal cortex extract were found to prevent the increase in skin capillary permeability which follows leukotaxine administration. Crystalline desoxycorticosterone was unable to do so. It is of considerable interest that compound E, which closely resembles corticosterone both physiologically and chemically, is unable to neutralize the effect of leukotaxine.

These experimental results may explain the qualitative differences in the effects of the various adrenal cortex preparations in the treatment of shock. Thus, desoxycorticosterone is capable of combating the shock due to muscle trauma, water intoxication and intraperitoneal injections of dextrose solution but not that following intestinal manipulation, while corticosterone is of benefit in treating the shock following intestinal manipulation. This indicates that a toxic factor similar to leukotaxine may be elaborated by trauma to the intestine resulting in an increased capillary permeability, while the other forms of shock may be due principally to extreme shifts of body fluids unrelated to capillary changes.

DISCUSSION

DR. EDWARD H. RYNEARSON, Rochester, Minn.: In view of the publicity being given the use of adrenal cortex extract and desoxycorticosterone acetate in the prevention and treatment of shock it is more than ever imperative that studies such as the one presented should be carried out. Keating, Power and I have presented our studies on the use of desoxycorticosterone acetate in the prevention of surgical shock. Observing its effect in women about to undergo the radical removal of breasts, we were unable to detect any clinical or laboratory changes in patients receiving this substance as compared with normal controls. This study was not performed with adrenal cortex extract, and it was not tried with any operations other than radical mastectomy.

DR. LOUIS N. KATZ, Chicago: Drs. Killian and Perlow, Mr. Asher and I have been using desoxycorticosterone in another type of experiment. We have found that occlusion of the main veins to the limb will lead to death of an animal in four to twelve hours with the symptoms of shock. We have

demonstrated that this shocklike state is due to the accumulation of fluid in the animal's leg. We have found, in as yet unpublished results, that the preliminary use of desoxycorticosterone tends to prevent death and tends to alleviate shock in such animals. It seems from our results, therefore, that desoxycorticosterone is of value in the treatment of the form of shock due to loss of plasma fluids, and its use would be justified clinically as a prophylactic agent. The demonstration of its use by clinical investigation is unsatisfactory, since one cannot predict which patient will have shock. Furthermore, our animal experiments suggest that it cannot be used effectively after shock has appeared. Not all forms of shock may be due to the same mechanism, so that desoxycorticosterone therapy may not be effective in all. I am sure that as knowledge grows the rationale for use of desoxycorticosterone as well as of other suggested therapeutic agents in shock will gradually become clearer.

Dr. S. C. Freed, Chicago: On a theoretical basis the use of desoxycorticosterone in the treatment of shock would be appropriate when there is fluid loss unrelated to any factor which renders the capillarics more permeable. When such factors exist, as after injury to the intestine, then either natural cortex extract or corticosterone, the substance in the extract which is probably responsible for the reduction in permeability of the capillaries, is indicated.

Treatment of Edema with an Oral Mercurial Diuretic

Dr. Joseph F. Borg, St. Paul: Thirty-nine patients with edema were given orally tablets of a complex mercury compound, sodium salicyllallylamide-o-acetate, with theophylline (salyrgan-theophylline tablets) to determine their diuretic effect. Each tablet contained 0.08 Gm. of salyrgan (containing 0.031 Gm. of mercury) and 0.04 Gm. of theophylline. The patients included 19 men and 20 women from 40 to 80 years of age. Maintenance doses of digitalis were given to patients with heart disease, and 6 Gm. of ammonium nitrate was given daily to all patients. All patients were maintaining stationary weight levels before the therapy was started, and results were judged by the water loss shown by daily weight determinations. Varying methods of administration revealed that best results, with the least toxicity, were obtained with divided daily doses, usually six tablets daily. Observations made over periods as long as sixteen months revealed excellent results in 28 patients, fair in 5 patients and none in 6 patients. Men and women responded equally well. Varying toxic manifestations (nausea, diarrhea, weakness and abdominal pain) occurred in 15 patients but were severe enough to necessitate the discontinuance of therapy in only 3 patients. No renal or hemic complications were noted. The 6 failures reported occurred among the patients treated earlier and 5 were probably due to an inadequate dose. Only 1 patient failed to respond when an apparently adequate trial was given.

DISCUSSION

Dr. William H. Bunn, Youngstown, Ohio: There are several reasons why this might be a useful remedy. I shall discuss only one. It is often difficult to find a vein suitable for intravenous injection in an obese or an edematous person. Formerly rectal suppositories of the mercurial diuretic were used with good effect, but this practice has had to be discontinued because of toxic effects. I have used the preparation for 16 patients with only one severe reaction (hematemesis); there were several other milder evidences of intolerance. It would seem worth while to continue this experiment, for most patients have a satisfactory diuretic effect.

Diagnostic Value of Certain Studies of Renal Function in Cases of Addison's Disease

Drs. E. J. Kepler and F. J. Robinson and M. H. Power, Ph.D., Rochester, Minn.: Two comparatively simple diagnostic procedures based on renal function eliminate the necessity of salt deprivation in patients suspected of having Addison's disease. The two tests are conducted in the following manner: The day before the test the patient eats his usual three meals but omits extra salt. After 6 p. m. he does not eat or drink. At 10:30 p. m. he voids and discards the urine. All urine voided from 10:30 p. m. until and including 7:30 a. m. is collected, measured and saved for chemical analysis if this proves necessary. At 8:30 a. m. the patient voids again (if possible) and discards the urine. Immediately thereafter he is given 20 cc. of water per kilogram of body weight, or 9 cc. per pound, in the course of forty-five minutes. He is asked to void at 9:30, 10:30 and 11:30 a. m. and 12:30 p. m. Each of the specimens is measured. At 11:30 a. m. or 12:30 p. m. (the exact time is inconsequential) blood is drawn under oil for chemical analysis if the necessity for such studies appears likely, as by this time the results of this first procedure usually will be apparent.

The first procedure is concluded by comparing the volume of urine voided during the night with the volume of the largest single hourly specimen voided between 8:30 a. m. and 12:30 p. m.; the second procedure, by analyzing the urine voided during the night and the blood for the concentrations of urea and chloride. A ratio is calculated from the values obtained in these four determinations.

From a study of 90 patients (40 of whom were proved by salt deprivation and by the Cutler, Power and Wilder procedure to have Addison's disease) it was ascertained that if the volume of urine which was voided during the night was less than the volume of urine voided at any one hour during the morning the patient did not have Addison's disease. If, on the other hand, the volume of urine voided during the night was greater than the volume voided at any one hour during the morning the patient might or might not have Addison's disease, and the chemical analyses which constitute the second procedure were necessary. Under the latter circumstances the following ratio is calculated from the results of the four chemical determinations (the volume of day urine being the largest of the hourly specimens voided during the day and the volume of night urine being the entire amount voided between 10:30 p. m. and 7:30 a. m.):

$$A = \frac{\text{urea in urine (mg. per 100 cc.)}}{\text{urea in plasma (mg. per 100 cc.)}} \times \frac{\text{chloride in plasma (mg. per 100 cc.)}}{\text{chloride in urine (mg. per 100 cc.)}} \times \frac{\text{volume of day urine (cc.)}}{\text{volume of night urine (cc.)}}$$

In nearly all instances in which the value for A did not exceed 25 the patient was found to have Addison's disease. Values for A of more than 30 indicated the absence of Addison's disease. The only exceptions encountered occurred in cases of nephritis. In conjunction with clinical evidence, the procedure proved to be decisively diagnostic in cases in which the presence of Addison's disease was proved by other methods.

DISCUSSION

Dr. Paul Starr, Chicago: Dr. Kepler and his associates should be congratulated for working out so simple a diagnostic test. Many potent endocrine substances are on the market, and physicians are urged to use them, with the result that a great deal of therapy is carried out which is dangerous to the patient. I am grateful for any procedure which will definitely indicate the need for therapy and which will also definitely show the conditions not requiring treatment.

The Bronchial Factor in Pulmonary Embolism

Drs. Joseph H. Jesser and Geza de Takats, Chicago: The bronchial tree of the dog was visualized, and the effect of pulmonary embolism on the pattern of the bronchial tree was studied. It was found that powerful bronchoconstriction was produced during embolism, which could be abolished by bilateral vagal section and often by sufficient doses of atropine. Mechanical obstruction to the trachea failed to produce bronchial spasm. Papaverine failed to protect the bronchial tree from this reflex spasm in most instances. These experiments emphasize the existence of widespread autonomic reflexes which occur within the distribution of vagal fibers. The suppression of these reflexes decreases the morbidity and mortality from pulmonary embolism.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

12:1-72 (Jan.) 1942

*Benign and Malignant Stromal Endometriosis. T. D. Robertson, W. C. Hunter, Portland, Ore.; C. P. Larson, Tacoma, Wash., and G. A. C. Snyder, Spokane, Wash.—p. 1.

Sputum Studies in Pneumonia: Effect of Sulfapyridine and Sulfathiazole. A. W. Frisch, with technical assistance of Miriam F. Frisch, Detroit.—p. 16.

Relation Between Liver and Thyroid Gland: I. Blood Iodine as Indicator of Liver Function. A. Cohn and S. E. Feldman, San Francisco. —p. 27.

Morphologic Variations in Adenocarcinoma of Fundus of Uterus, with Reference to Secretory Activity and Clinical Interpretations. N. W. Ehrlich, Buffalo.—p. 32.

New Standard Slide Test Antigen (Water Purified). B. S. Kline, Cleveland.—p. 48.

Adventitious Substances Removed from Slide Test Antigen by Extraction with Water. Miriam S. Levy, Cleveland.—p. 62.

Drainage of Coronary Sinus into Left Auricle: Report of Rare Congenital Cardiac Anomaly. L. E. Fieldstein and J. Pick, New York. —p. 66.

Stromal Endometriosis.—Robertson and his associates discuss the nature of benign and malignant stromal endometriosis as they observed it in 6 instances. The malignant form is interpreted as a low grade sarcoma. Uterine adenomyosis and stromal endometriosis are variants of the same process originating by extrusion of the endometrium into the myometrium. A case is cited in proof of this assertion. Adenomyosis is the more frequent manifestation. After the menopause, stromal endometriosis may either continue to grow or, as in 1 of their patients, regress. This is unlike glandular endometriosis, which always becomes inactive when ovarian function ceases. Microscopically, stromal endometriosis presents a characteristic and readily identifiable picture.

American J. Digestive Diseases, Fort Wayne, Ind.

9:1-48 (Jan.) 1942

Clinical and Laboratory Study of Plasma Lipids in Obstructive Jaundice and Several Types of Hepatic Disease. C. A. Jones, Philadelphia. —p. 1.

Comparative Evaluation of Newer Liver Function Tests: (Comparison of Intravenous Hippuric Acid Test, Cephalin-Cholesterol Flocculation Test, Colloidal Gold Test and Serial Bromsulphalein Test with Oral Hippuric Acid Test and Rosenthal Bromsulphalein Test). J. G. Mateer, J. I. Baltz, D. F. Marion and R. A. Hellands, with assistance of Elizabeth M. Yagle, Detroit.—p. 13.

*Genesis of Pellagra, Pernicious Anemia and Sprue. S. Harris and S. Harris Jr., Birmingham, Ala.—p. 29.

Study of Sphincter of Oddi in the Human and the Dog. H. Necheles and D. D. Kozoll, Chicago.—p. 36.

Effect of Food on Sphincter of Oddi in Human Subjects. G. S. Bergh, Minneapolis.—p. 40.

Porphyrinuria in Aged. H. A. Rafsky and B. Newman, New York. —p. 43.

Lymphosarcoma Causing Obstruction at Duodenojejunal Angle: Report of Case. H. J. Svien and A. B. Rivers, Rochester, Minn.—p. 45.

Pellagra, Pernicious Anemia and Sprue.—The Harrises believe that pernicious anemia, pellagra and sprue are three separate and distinct diseases despite the fact that some symptoms are common to all three and that use of liver or liver extract and a high protein, low carbohydrate diet rich in vitamins is effective. Pernicious anemia differs only in that liver or liver extract therapy must be continued for the rest of the patient's life. Hepatic insufficiency appears to be a factor in the genesis of pellagra, pernicious anemia and sprue. The liver may secrete hormones. Research workers who are prepared to make biologic laboratory investigations may prove or disprove (1) that hepatic insufficiency is the underlying factor in pernicious anemia and (2) that hormones secreted by the liver may be factors in erythrocytolysis or hemopoiesis. Identical pathologic changes are found in the liver in pernicious anemia and pellagra. It seems possible that hepatic insufficiency by inhibiting the secretion of an endocrine substance which controls erythrocytolysis or hemopoiesis may cause pernicious anemia and that a deficiency of an intrinsic hepatic factor may prevent the utilization or the storage of nicotinic acid, the pellagra preventive factor in vitamin B. Greenspon and Morris suggest a gastric hormone as the intrinsic factor in preventing pernicious anemia. The authors cite instances in which pellagra and pernicious anemia, sprue and pernicious anemia or pellagra, sprue and pernicious anemia coexisted. This suggests common etiologic factors. The frequency of intestinal parasites in anemic patients with pellagra, pernicious anemia or sprue suggests that the intestinal toxemia and hepatic insufficiency may be etiologic factors in some cases.

American J. Orthodontics and Oral Surgery, St. Louis

27:599-666 Orthodontics (Nov.) 1941. **Partial Index**

599-666 Oral Surgery

Orthodontics

Psychologic Effects of Malocclusion of Teeth. M. B. Walker, Norfolk, Va.—p. 599.

Further Investigations of Bone Changes Resulting from Experimental Orthodontic Treatment. C. Breitner, New York.—p. 605.

Oral Surgery

Incidence of Supernumerary and Congenitally Missing Lateral Incisor Teeth in Eighty-One Cases of Harelip and Cleft Palate. J. A. Millhon and E. C. Stafne, Rochester, Minn.—p. 599.

Shock, Respiratory and Cardiac Failure. L. B. Ellis, Boston.—p. 618.

Local Anesthetics and Their Use in Patients Suffering from Endocrine Disorders. P. Adler, Makó, Hungary.—p. 620.

*Coagulation Globulin in Hemorrhages After Extraction of Teeth, Especially in Hemophilic Patients. S. van Creveld and R. Hamer, Amsterdam, Netherlands.—p. 628.

Coagulation Globulin for Postextraction Hemorrhage.—Van Creveld and Hamer controlled in 6 patients hemorrhage following the extraction of teeth with a powder of coagulation globulin prepared from cow's plasma. Four of the patients had hemophilia, 1 had a history of repeated hemorrhages after tooth extraction and 1 had a moderately prolonged coagulation time, which explained a severe hemorrhage after a former extraction. Coagulation globulin powder, which in the normal blood may be the carrier of the coagulation promoting factor, has a definite hemostyptic activity. When a patient with hemophilia is to have an extraction he should be hospitalized. The wound after extraction should be sprinkled with coagulation globulin and a tampon slightly moistened with saline solution applied. This is to be thickly covered with coagulation globulin powder. The tampon should be pressed on the wound by a finger for four to six minutes. It should be renewed every twenty-four hours after the wound has been cleansed. The repeated application of the powder may cause hypersensitivity. Although the risk of this complication is small, the authors intend in the future to use a coagulation globulin powder prepared from human plasma or from the human placenta.

27:667-744 Orthodontics (Dec.) 1941. **Partial Index**

667-746 Oral Surgery

Orthodontics

*Effects of Congenital Syphilis on Teeth and Associated Structures in Children. W. D. Johnston, B. G. Anderson and P. F. McAlenney, New Haven, Conn.—p. 667.

First Aid Appliance for Treatment of Fractured Jaw. T. W. Sorrels, Oklahoma City.—p. 714.

Oral Surgery

Incisive Canal Cysts. M. M. Cohen, Boston.—p. 670.

Gas Bacillus Infections, Burns and Tetanus. J. H. Burnett, Boston. —p. 698.

General Anesthesia for Oral Operations. S. C. Wiggin, Boston.—p. 704.

Secondary Repair of Cleft Lips and Their Nasal Deformities. J. B. Brown and F. McDowell, St. Louis.—p. 712.

Effects of Congenital Syphilis on Teeth.—Johnston and his associates observed the effects of congenital syphilis on the teeth and oral structures of children by comparing 39 children aged 1 to 15 years who had known congenital or acquired syphilis with a positive Wassermann reaction. The medical

histories of 29 of the mothers (all with positive Wassermann and Kahn reactions) of these children were available. Histories of the children were studied with respect to lesions of teeth, eyes, ears, nose, hair and nails. In examining the oral cavity, particular attention was paid to stigmas which might be of syphilitic origin, such as malocclusion and dental caries. Gross examination of the children revealed that 6 had a "saddle nose," 1 fixed pupils and 2 impaired hearing. No intraoral pathologic lesions of the soft tissues were observed. Direct measurement of roentgenograms of the first and second permanent molars disclosed that the second molar of 20 was larger than the first molar and that the first molar of 5 was larger than the second molar. The incisors of 1 child were the same size, while those of 10 could not be compared because of loss of the teeth. Serially cut sections, stained with Delafield's hematoxylin and alcoholic eosin, of eleven teeth from the children revealed no abnormalities attributable to congenital syphilis. The most characteristic dental abnormalities seen were (1) an apparent lack of development in the anterior region, particularly in the maxilla, (2) involvement of the four incisors, two cuspids and the two first molars of the permanent teeth, (3) a huddled appearance of the mamelons, marginal ridges and cusps of the affected teeth and (4) an undersized, malformed appearance of the crowns of the teeth. Eight of the children had a peculiar type of "open bite." The so-called Hutchinson triad (deafness referable to the acoustic nerve, interstitial keratitis and defect of the first maxillary permanent incisor) was not observed.

American Journal of Public Health, New York

31:1243-1344 (Dec.) 1941

For Whom the Bell Tolls. A. Wolman, Baltimore.—p. 1243.
Four Years of Contraception as Public Health Service in North Carolina. G. M. Cooper, Raleigh, N. C.; Frances Roberta Pratt and Margaret Jarman Hagood.—p. 1248.
War and Health in Britain. W. Jameson, London, England.—p. 1253.
Nutrition in Relation to Pregnancy and Lactation. J. Ernestine Becker, H. J. Bickerstaff and N. J. Eastman, Baltimore.—p. 1263.
What Is Happening to the Social Gains of the Last Ten Years? Mary Van Kleeck, New York.—p. 1271.
Recent Studies in Influenza. F. L. Horsfall Jr., New York.—p. 1275.
Diagnosis of Epidemic Encephalitis by Complement Fixation Tests. J. Casals, New York.—p. 1281.
Sanitary Engineering Activities of Sanitary Corps, United States Army. W. A. Hardenbergh, Washington, D. C.—p. 1285.
Two Years' Experience in Nutrition Program for National Defense. F. F. Tisdall, Toronto, Canada.—p. 1289.
Public Health Nursing in National Defense. Katharine Tucker, Philadelphia.—p. 1293.
Immunologic Reactions in Rickettsial Diseases, with Special Reference to Time of Appearance of Antibodies. Florence Fitzpatrick and Bettylee Hampil, Glenolden, Pa.—p. 1301.

American Journal of Tropical Medicine, Baltimore

22:1-120 (Jan.) 1942

Florence Nightingale and Tropical and Military Medicine. T. T. Mackie, New York.—p. 1.
The Known and the Unknown in Plague. K. F. Meyer, San Francisco. —p. 9.
Venomous Snakes, Some Central American Records, Incidence of Snake Bite Accidents. H. C. Clark, Panama, Republic of Panama.—p. 37.
Malaria Reconnaissance of Province of Pinar Del Rio in Cuba. H. P. Carr and J. Fernandez Melendez, Havana, Cuba.—p. 51.
Malaria Reconnaissance of Province of Havana in Cuba. H. P. Carr, J. Fernandez Melendez, A. Ros and A. Fernandez Melendez, Havana, Cuba.—p. 63.
Varying Infectiousness of Different Patients Infected with Vivax Malaria. M. F. Boyd, Tallahassee, Fla.—p. 73.
Anopheles (Kerteszia) Bellator Dyar and Knab as Vector of Malaria in Trinidad, British West Indies. L. E. Rozeboom and R. L. Laird, Baltimore.—p. 83.
Prevalence of Amebiasis in Western Hemisphere. E. C. Faust, New Orleans.—p. 93.
*Results of Protozoologic Survey of Food Handlers at Professional School in Philadelphia. D. H. Wenrich and J. H. Arnett, Philadelphia.—p. 107.

Protozoologic Survey of Food Handlers.—Wenrich and Arnett state that seven annual examinations of 190 food handlers at a professional school in Philadelphia revealed that the incidence was higher for the employee than for the student group on first examination for Blastocystis, total protozoa, Endolimax, Endameba coli, Dientameba, Chilomastix and Enteromonas. The 1,000 students had an incidence of 10.7 per cent for Endameba histolytica as compared with 8 per cent for the employees after one examination. The incidence from an average of three and two-tenths examinations for each employee was considerably higher than that for the first examination in respect to most of the intestinal protozoa. Of the six infections with Endameba histolytica detected in the employee group, four were found at the first examination, one at the fourth and one at the fifth. All of the fifteen infections with this species discovered in the students were found at the first examination. Carriers of Endameba histolytica had no more gastrointestinal symptoms than the others.

Archives of Dermatology and Syphilology, Chicago

45:259-454 (Feb.) 1942

Verruca Plana and Epithelial Nevus: Including Study of Epidermodysplasia Verruciformis. M. Waisman, Chicago, and H. Montgomery, Rochester, Minn.—p. 259.
Pseudoxanthoma Elasticum. L. de Sá Penella and J. Esteves, Lisbon, Portugal.—p. 283.
Nutritional Dermatoses in Rat: V. Signs and Symptoms Resulting from Diet Containing Unheated Dried Egg White as Source of Protein. M. Sullivan and Jane Nicholls, Baltimore.—p. 295.
Fibrotic Nodules of Skin. S. E. Sweitzer and L. H. Winer, Minneapolis.—p. 315.
Electrosurgical Removal of Plantar Warts. F. L. Karp and S. B. Frank, New York.—p. 328.
Erythema Elevatum Diutinum: Report of Case with Histologic and Bacteriologic Studies. M. F. Engman Jr., St. Louis; R. O. Pfaff, San Jose, Calif., and Zola K. Cooper, St. Louis.—p. 334.
Sclerema Neonatorum: Report of Case with Autopsy Observations. N. E. Reich, Brooklyn.—p. 342.
*Extensive Alopecia Areata of Dental Origin: Evidence That Isolated Areas of Alopecia May Be Due to Ipsilateral Foci of Infection. J. D. Grace, Ann Arbor, Mich.—p. 349.
Eruption Due to Sulfanilylguanidine (Sulfaguanidine). N. P. Ringelman, Cincinnati.—p. 353.
*Testosterone Propionate in Treatment of Male Postclimacteric Dermatoses. L. Hollander and H. R. Vogel, Pittsburgh.—p. 356.
Dermatologic Aspects of Roentgen Ray Field Distribution. J. E. Ginsberg, Chicago, and R. S. Landauer, Highland Park, Ill.—p. 364.
Job's Illness—Pellagra. C. J. Brim, New York.—p. 371.
*Clinical Evaluation of Superfatted Soap. R. L. Kile, Cincinnati.—p. 377.

Alopecia Areata of Dental Origin.—Complete regrowth of hair is reported by Grace in a case of extensive alopecia areata of three years' duration after several teeth, which were evidently not infected, had been extracted. The teeth contained large fillings of silver amalgam. All but two of the extracted teeth showed evidence of absorption of the filling material. The case demonstrates that improperly filled teeth may be the cause of alopecia areata.

Postclimacteric Dermatoses of Men.—Hollander and Vogel observed the therapeutic effect of the percutaneous use of androgen in the dermatoses of 8 men about and after the climacteric period. The results were most satisfactory. A preparation made from synthetic testosterone propionate was rubbed in over unaffected surfaces of the skin. The use of this substance for the treatment of presenile and senile dermatitis of men appears rational, as the cutaneous lesions in the postclimacteric period appear to be a definite entity. In some instances the generalized dermatitis followed a definite local inflammation produced by local or contact irritation. The symptoms were ameliorated only after the inunctions had been used.

Superfatted Soap.—Kile tested the practical use of superfatted soap and a control soap on 57 young women. The evidence indicates that more discomfort was experienced when the control soap than when the superfatted product was used. Most of the subjects who reported discomfort with either soap had dry skins. Furthermore, dryness of the skin was observed by more subjects when the control soap than when the superfatted soap was used: the ratio was 3:1 for the entire group and 4:1 for those with dry skins. A few women noticed some improvement in their acne while using the control soap but not while using the superfatted product. Women with dry skins definitely preferred the superfatted soap, while those with normal or oily skins preferred the control soap.

Archives of Neurology and Psychiatry, Chicago

47:195-352 (Feb.) 1942

*Distant Neuroanatomic Complications of Spina Bifida (Spinal Dysraphism): Hydrocephalus, Arnold-Chiari Deformity, Stenosis of Aqueduct of Sylvius, etc.: Pathogenesis and Pathology. B. W. Lichtenstein, Chicago.—p. 195.

*Pyruvic Acid Studies in Wernicke Syndrome. H. Wortis, E. Bueding, M. H. Stein and N. Jolliffe, New York.—p. 215.

Induction of Metrazol Convulsions with Patient Under Nitrous Oxide Anesthesia. H. D. Fabing, Cincinnati.—p. 223.

Effect of Emotional Excitement on Insulin Content of Blood: Contribution to Physiology of Psychoses. E. Gellhorn, J. Feldman and A. Allen, Chicago.—p. 234.

Momentary Death and Choreoathetosis Following Nitrous Oxide Anesthesia, with Recovery. E. Kasin and S. Parker, with technical assistance of S. Machover, Brooklyn.—p. 245.

*Association Between Convulsive Seizures and Rheumatic Heart Disease. D. B. Foster, Ann Arbor, Mich.—p. 254.

Correlations Between Patterns of Breathing and Personality Manifestations. J. W. Thompson and W. Corwin, Waltham, Mass.—p. 265.

Intraspinal Meningiomas: Clinical and Pathologic Study. M. H. Brown, Rochester, Minn.—p. 271.

Section of Spinothalamic Tract at Level of Inferior Olive. H. G. Schwartz and J. L. O'Leary, St. Louis.—p. 293.

Estrogen Therapy of Agitated Depressions Associated with Menopause. L. Danziger, Sykesville, Md.—p. 305.

"Crocodile Tears" Treated by Injection into Sphenopalatine Ganglion. H. Gottesfeld, Norristown, Pa., and F. H. Leavitt, Philadelphia.—p. 314.

Danlos-Ehlers Syndrome: Report of Case with Transient Paralysis of Vocal Cord. J. D. Sullivan, Albany, N. Y.—p. 316.

Distant Neuroanatomic Complications of Spina Bifida.—From a study of several cases presenting the important neuroanatomic complications of spinal dysraphism and a review of the literature, Lichtenstein finds that in many instances of spina bifida (spinal dysraphism) there is an abnormal fixation of the spinal cord which precludes its adequate rostral migration with continued development. In some cases this abnormal fixation results in a pleomorphic variety of neuroanatomic alterations in distant parts of the nervous system. The alterations are (1) short cauda equina and low lying conus medullaris, (2) abnormal stretching of the spinal cord above the fixation, (3) elongation of the hindbrain with localization in the vertebral canal of the medulla oblongata, the choroid plexus of the fourth ventricle and parts of the cerebellum, (4) dysplasia of some of the cerebellar folia, (5) elongation of the lowermost cranial nerves with their compression at the foramen magnum by the hindbrain, (6) stenosis of the aqueduct of Sylvius, (7) internal hydrocephalus due to stenosis of the aqueduct of Sylvius and to impaction of the hindbrain, (8) deformity of the medulla oblongata and of the hind end of the fourth ventricle, (9) hydromyelia of the uppermost cervical levels of the spinal cord, (10) syringomyelic-like cavitation in the cervical portion of the spinal cord and (11) pressure on the anterior spinal arteries and the vertebral veins at the foramen magnum.

Pyruvic Acid Studies in Wernicke Syndrome.—Wortis and his associates recently observed 34 clinical cases of the Wernicke syndrome which tend to confirm the thesis that the disorder is probably a combination of several nutritional deficiencies and is not due to alcoholism alone. Of the 34 patients, 2 were depressed and refused to eat and 1 had pulmonary tuberculosis and vomiting. Delirium, with its increase in psychomotor activity and hence total metabolism, may increase the requirement of certain of the vitamins and tends to aggravate any latent deficiency state. Other deficiency syndromes, such as pellagra, nicotinic acid deficiency encephalopathy, ariboflavinosis and scurvy, may and do superimpose themselves on or accompany the Wernicke syndrome. All patients receiving adequate vitamin therapy recovered unless a concomitant complicating condition was the cause of death. In patients who recovered the Korsakoff syndrome was the rule, and it did not respond to thiamine therapy. The blood pyruvate level was determined for 11 patients. The level of pyruvate in the blood during fasting ranged from 1.44 to 3.63 mg. per hundred cubic centimeters (normal is 0.77 to 1.17 mg.), and when 7 of the patients were subjected to the additional stress of metabolizing ingested dextrose not only was the maximal rise great but the elevation above the fasting level was maintained for at least four to five hours. The maximal increase in pyruvate did not occur during the first hour as it did in normal subjects but continued to rise until maximal values were reached as late as the fourth hour. After vitamin B therapy, the level of pyruvate in the blood during fasting rapidly returned to normal, but the pyruvic acid curve following the ingestion of dextrose returned to normal only after prolonged treatment. Ophthalmoplegia disappeared and the mental status improved in twenty-four to seventy-two hours. This improvement antedated the return of pyruvate metabolism to normal. Clinical improvement was associated with a definite fall in the level of pyruvic acid in the blood during fasting. The conclusion is that patients with the Wernicke syndrome are unable to metabolize pyruvic acid properly and that prolonged treatment with components of the vitamin B complex corrects this defect.

Convulsive Seizures and Heart Disease.—Foster states that 29 patients with convulsive seizures were encountered among 2,153 with rheumatic heart disease. No patient with an associated convulsive disorder with any suggestion of cranial trauma, syphilis, alcohol, expanding intracranial lesion, uremia or other epileptogenic factors was included in the series. This incidence of 10.76 per cent is higher than that in the general population. Acute rheumatic fever or Sydenham's chorea preceded the convulsive manifestations in 58.6 per cent of the 29 patients, the relation was doubtful in 34.4 per cent and the seizures preceded the rheumatic infection in 6.8 per cent. A familial incidence of convulsive seizures or migraine was six times as frequent among the patients with rheumatic heart disease and seizures as among those with only rheumatic heart disease. Evidence from other sources corroborates the suggestion that the seizures are more than coincidental. Inferential evidence from the common occurrence of paroxysmal cardiac arrhythmia in rheumatic heart disease and the fact that cardiac arrhythmia may be accompanied by seizures affirm the foregoing statement. Several mechanisms associated with the rheumatic state are probably capable of producing seizures in predisposed persons: paroxysmal cardiac arrhythmia, passive congestion of the cerebrum, delayed auriculoventricular conduction time (with or without the superimposition of digitalis) and cerebral infarction.

Archives of Pathology, Chicago

33:145-294 (Feb.) 1942

Studies of Cartilage: I. Some Effects of Mediums of Different pH Values on Composition of Cartilage. G. M. Hass and B. Garthwaite, New York.—p. 145.

Id.: II. Quantitative Study of Stabilizing Action of Crystal Violet on Tissue Polysaccharide Compounds. G. M. Hass, New York.—p. 163.

Id.: III. New Histochemical Reaction with High Specificity for Cartilage Cells. G. M. Hass, New York.—p. 174.

Studies on Inflammation: IV. Behavior of Cellular Proteinases in Experimental Tuberculosis of Rabbits. C. Weiss, San Francisco.—p. 182.

Leukocytosis Promoting Factor in Inflammatory Exudates of Man. V. Menkin, M. A. Kadish and S. C. Sommers, Boston.—p. 188.

Presence of Leukocytosis Promoting Factor in Circulating Blood. V. Menkin and M. A. Kadish, Boston.—p. 193.

Effect of Experimental Cirrhosis on Intrahepatic Circulation of Blood in Intact Animal. K. G. Wakim and F. C. Mann, Rochester, Minn.—p. 198.

Dietary Production of Hepatic Cirrhosis in Rabbits, with Analysis of Factors Involved. M. A. Spellberg, R. W. Keeton, and R. Ginsberg, Chicago.—p. 204.

Drainage of Pulmonary Veins into Right Side of Heart. H. Brody, New York.—p. 221.

Pathologic Aspect of Nutritional Deficiencies in Rats: I. Lesions Produced by Diets Free of Vitamin B_6 (Pyridoxine) and Response to Vitamin B_6. W. Antopol, Newark, N. J., and K. Unna, Rahway, N. J.—p. 241.

Arkansas Medical Society Journal, Fort Smith

38:183-204 (Feb.) 1942

Treatment of Goiter. G. V. Lewis, Little Rock.—p. 183.

Contraception Technic and Medical Indications. M. C. Hawkins Jr., Searcy.—p. 186.

Workmen's Compensation as Related to Physicians. P. A. Deisch, Helena.—p. 188.

California and Western Medicine, San Francisco

56:1-54 (Jan.) 1942

Duodenal Ulcer: Indications for and Extent of Partial Gastrectomy. V. C. Hunt, Los Angeles.—p. 6.
Emergency Transfusions: Suggestions for Hospitals, Clinics and Laboratories. J. R. Upton, San Francisco.—p. 9.
Newer Physiology of Biliary Tract and Its Application to Biliary Tract Disease. L. Goldman, San Francisco.—p. 10.
Psychiatric Problems in Private Practice: Their Management. H. D. Eaton, Los Angeles.—p. 14.
Erythroblastosis Fetalis: Report of Case. R. D. Cutter and B. L. Davis, Palo Alto.—p. 17.

Canadian Public Health Journal, Toronto

33:1-50 (Jan.) 1942

Responsibility for Following Up Venereal Disease Contacts. W. H. Avery, Toronto.—p. 1.
Development of County Health Units in Province of Quebec. B. LaHaye, Quebec.—p. 7.
Relationship of the Medical Officer of Health to the Local Board of Health. J. H. Munro, Maxville, Ont.—p. 13.
Chemical and Toxicologic Studies on Phenothiazine. R. J. Schnitzer, C. Siebenmann and H. D. Bett, Toronto.—p. 17.
Restaurant Personnel and Methods. A. G. Macnab, Westmount, Que. —p. 25.

Cancer Research, Baltimore

2:1-78 (Jan.) 1942

Inhibition of Diphosphopyridine Nucleotide System by Split Products of Dimethylaminoazobenzene. C. J. Kensler, S. O. Dexter and C. P. Rhoads, New York.—p. 1.
Neurofibromas of Rat Ears Produced by Prolonged Feeding of Crude Ergot. A. A. Nelson, O. G. Fitzhugh, H. J. Morris and H. O. Calvery, Washington, D. C.—p. 11.
Increased Viscosity of Cells of Induced Tumors. M. F. Guyer and P. E. Claus, Madison, Wis.—p. 16.
Effect of Radioactive Phosphorus on Viability of Mouse Sarcoma 180. K. Sugiura, New York.—p. 19.
Effect of Thorium Dioxide on Normal and Estrinized Tumor Bearing Rats. J. Heiman, New York.—p. 25.
Comparative Studies on Radiosensitivity of Normal and Malignant Cells in Culture: I. Effect of X-Rays on Cell Outgrowth in Cultures of Normal Rat Fibroblasts and Rat Benzpyrene Induced Sarcoma. L. Halberstaedter, G. Goldhaber and L. Doljanski, Jerusalem, Palestine. —p. 28.
Behavior of Tumor Cells in Tissue Culture Subjected to Reduced Temperatures. M. E. Sano and L. W. Smith, Philadelphia.—p. 32.
Relationship of Endocrine System to Carcinogenesis. D. L. Smith, J. A. Wells and F. E. D'Amour, Denver.—p. 40.
Fibromatogenic Action of Specific Urinary Estrogens (Metahormones) in Guinea Pig. A. Lipschütz, R. Thibaut and L. Vargas Jr., Santiago, Chile.—p. 45.
Carcinogenic Effect of Estradiol and Theelin in Marsh Buffalo Mice. F. Bischoff, M. Louisa Long, J. J. Rupp and Georgena J. Clarke, Santa Barbara, Calif.—p. 52.
Homoiotransplantation of Spontaneous Tumors into Mice Bearing Spontaneous Tumors. H. T. Blumenthal, St. Louis.—p. 56.
*Influence of Syphilis in Cancer of Cervix Uteri. W. G. Harding 2d, Sydney, Australia.—p. 59.

Syphilis and Cancer of Cervix.—Harding states that among 227 consecutive charity patients with epithelioma of the cervix uteri 36 were syphilitic and 191 were free from syphilis. In the syphilitic women carcinoma developed at an average age of 47 years, as compared to 51 years in the nonsyphilitic women of the series. Among the nonsyphilitic women there was a higher percentage of grade 1 carcinoma, and they showed less extensive involvement than the women with syphilis.

Connecticut State Medical Journal, Hartford

6:79-154 (Feb.) 1942

Gynecologic Problems of Childhood and Adolescence. A. H. Morse, New Haven.—p. 81.
The Problem Child. M. C. Pease, New York.—p. 86.
Convulsions in Children: Diagnostic Routine and Treatment. W. J. German, New Haven.—p. 88.
Contribution of Orthopedics to Early Treatment of Anterior Poliomyelitis. A. L. Shure, New Haven.—p. 91.
Craniopharyngioma: Tumor of Hypophysial Duct (Rathke's Cyst). C. W. Perkins, Norwalk.—p. 94.
Choledochous Cyst: Case Report. A. J. Mendillo and W. B. Koufman, New Haven.—p. 99.
The Law and Planned Parenthood: Case Report. M. C. Winternitz and H. Bunting, New Haven.—p. 102.
Calcified Cyst of Pericardium. F. E. Tracy, Middletown.—p. 103.
Early Physicians of Windham County and Founding of Windham County Medical Association. R. L. Gilman, Storrs.—p. 107.

Delaware State Medical Journal, Wilmington

14:1-18 (Jan.) 1942

Significance of Hematuria. W. H. Kinney, Philadelphia.—p. 2.
*Observations on Kenny Treatment. G. J. Boines, Wilmington.—p. 11.

Kenny Treatment.—Since November 1941 Boines has used the Kenny method (passive and active movement and hot fomentation to relieve the spasticity of the affected muscles) for 16 patients with poliomyelitis. Five of the patients showed 100 per cent recovery within six weeks, 7 showed 90 per cent and 4 showed 75 per cent. Trained technicians are necessary to carry out the passive movements and the muscle reeducation exercises. The National Foundation for Infantile Paralysis has approved the Kenny method. It was clearly demonstrated in the author's 16 patients that no deformity, stiff joints or apparent muscular atrophy resulted. Even some long-standing uncomfortable deformities can be helped with the Kenny treatment. The bright, hopeful, cheerful effect of the treatment on the patient, parents and nursing attendants should not be overlooked. The day by day recovery of muscles is an inspiration to the nurse and to parents and promises a future recovery to the patient. The care of the patient with poliomyelitis as outlined by Sister Kenny consists in 70 per cent nursing care and medical supervision. Corrective and stabilizing operations are necessary when they are indicated. Another advantage of the treatment is that, if residual paralysis does result, the muscles are better preserved for reconstructive orthopedic surgery. The hot fomentations stimulate circulation and bring more leukocytes to the affected parts, which remove the toxins and virus from the body.

Iowa State Medical Society Journal, Des Moines

32:1-52 (Jan.) 1942

Military Medicine in Its General Application. S. U. Marietta, Washington, D. C.—p. 1.
Treatment of Traumatic Incidents in Psychiatric Individuals. W. R. Hamsa, Omaha.—p. 7.
*Clinical Problem of Infectious Mononucleosis. J. E. McFarland, Ames. —p. 10.
Nonmalignant Lesions of Large Bowel. C. B. Meffert, Cedar Rapids. —p. 12.
Surgical Treatment of Chronic Dacryocystitis. J. E. Reeder Jr., Sioux City.—p. 15.
Actinic Therapy in Middle Ear Infections. F. J. Chapman, Keokuk. —p. 20.
Dislocation of Pelvis Without Fracture: Report of Case. D. N. Gibson, Des Moines.—p. 23.

32:53-102 (Feb.) 1942

Surgical Treatment of Carcinoma of Lower Portion of Colon. C. W. Mayo, Rochester, Minn.—p. 53.
Torsion of Gallbladder. E. D. McClean and H. G. Ellis, Des Moines. —p. 56.
Vitamin B. Complex. W. H. Sebrell, Washington, D. C.—p. 60.
Diagnosis and Treatment of Infections of Upper Urinary Tract. M. M. Benfer, Davenport.—p. 62.
Headache of Ocular Origin. R. J. Stephen, Cedar Rapids.—p. 66.
Variations Between Oral and Rectal Temperature Readings. H. Stadler, Iowa City.—p. 70.
Pedunculated Lipoma. J. A. W. Johnson, Newton.—p. 71.

Infectious Mononucleosis.—McFarland states that to diagnose infectious mononucleosis early many conditions must be differentiated, and that when a patient has onset of fever, vomiting, pain and tenderness in the right lower quadrant of the abdomen and leukocytosis it is practically impossible to differentiate the disease from appendicitis. The author has performed appendectomy on 3 children who proved to have enlarged mesenteric nodes but not appendicitis and in whom the typical picture of mononucleosis developed later. However, more recently 1 of his patients had to have an appendical abscess drained. He suggests that perhaps mesenteric lymphadenitis is frequently if not always infectious mononucleosis. The prolonged convalescence in mesenteric lymphadenitis fits well with that of mononucleosis. An early blood smear showing only polymorphonuclear leukocytes, an elevation of the temperature higher than that usually seen in appendicitis, pain out of proportion to the tenderness and rigidity, and vomiting out of proportion to all three should suggest mononucleosis. Other nodes are likely to be enlarged, and granular pharyngitis will nearly always be present. Other members of the patient's family may later show more readily identified stages of the disease. How-

ever, in spite of all this it is still unsafe to postpone operation, but with more surgeons on the lookout it may be possible to prove or disprove the identity of any of the diseases mentioned and to make a satisfactory preoperative diagnosis.

Journal of Allergy, St. Louis

13:105-214 (Jan.) 1942

Effect of Wide Variations in Potassium and Sodium Intake in Asthmatic Children. G. F. Harsh and P. B. Donovan, San Diego, Calif.—p. 105.
Immunologic Response of Allergic Children to Toxoid. T. B. Friedman, J. A. Bigler and Marie A. Werner, Chicago.—p. 114.
Estrogenic Hormone Determinations in Premenstrual Asthma. G. L. Waldbott and L. J. Bailey, Detroit.—p. 125.
Extraction of Ragweed Pollen as Observed with Ultramicroscope. E. A. Brown, London, England, and N. Benotti, Boston.—p. 144.
Studies on Immunology of Ragweed Pollen Proteins: II. Anaphylactic Experiments. M. Mosko, R. Hecht and H. Weil, Chicago.—p. 149.
Relationship of Maternal Diet to Intrauterine Sensitization. B. Zohn, Brooklyn.—p. 153.
*Prophylactic Oral Therapy Against Poison Ivy. H. Gold and P. Masucci, Chester, Pa.—p. 157.
Cereal-Free Elimination Diets and Soybean Emulsion for Study and Control of Infantile Eczema. A. H. Rowe and C. L. Mauser, Oakland, Calif.—p. 166.

Oral Therapy Against Ivy Poisoning.—Gold and Masucci studied the prophylactic effect of oral therapy against ivy poisoning in 20 subjects known to be susceptible. Treatment consisted in having the patient swallow tablets containing 0.5, 2, 5 or 10 mg. of poison ivy oleoresin after the noon meal. The initial dose was one half or one 0.5 mg. tablet. Treatment was given daily unless severe reactions occurred, when it was given every other day or at longer intervals. The dose was increased according to the patient's tolerance. The maximal dose, fifteen 10 mg. tablets, was reached by all but 1 patient, who took 500 mg. a day without untoward effects. After treatment, vesicles and pruritus following field tests, which were more severe than normal accidental exposure, were absent in 17 and present in 3 subjects. These observations confirm those of Shelmire that previous attempts at immunization by subcutaneous injection failed because the extracts used were not potent and the dose was inadequate. The largest amount that other investigators were able to inject was 0.5 cc. of a 1:50 solution, and this invariably produced severe local reactions. The value of oral desensitization is obvious, and the danger of contact dermatitis from handling and swallowing the liquid preparation as advised by Shelmire is removed. The tablets have retained their potency for two and five-tenths years. Large, well controlled clinical trials of the prophylactic measure should be done to determine its true usefulness.

Journal of Bone and Joint Surgery, Boston

24:1-244 (Jan.) 1942. **Partial Index**

Surgery of Intrinsic Muscles of Hand Other Than Those Producing Opposition of Thumb. S. Bunnell, San Francisco.—p. 1.
Influence of Estrogens on Shape of Long Bones. J. L. Bremer, Boston.—p. 32.
Calcification and Ossification: III. Role of Local Transfer of Bone Salt in Calcification of Fracture Callus. M. R. Urist, Baltimore.—p. 47.
*Clinical Significance of Certain Microscopic Changes in Muscles of Anterior Poliomyelitis. H. E. Hipps, Marlin, Texas.—p. 68.
Use of Preserved Bone Graft in Orthopedic Surgery. A. Inclán, Havana, Cuba.—p. 81.
Valgus Deformity of Knee Resulting from Injury to Lower Femoral Epiphysis. L. C. Abbott and G. G. Gill, San Francisco.—p. 97.
Calcareous Tendinitis in Metacarpophalangeal Region. W. Cooper, Brooklyn.—p. 114.
Treatment of Coxitis. D. V. Marshall, Hull, England.—p. 169.
March Fracture of Femur: Report of Case. L. T. Peterson, Washington, D. C.—p. 185.
Sciatic Pain: Its Significance in Diagnosis of Cauda Equina Tumors: Report of Four Cases. A. Kaplan, M. B. Bender and M. Sapirstein, New York.—p. 193.

Microscopic Changes of Muscles in Poliomyelitis.—Hipps studied at operation the muscles of patients who had had anterior poliomyelitis for two years or more. The patients were often given physical therapy for varying periods of time before some necessary standard operation was performed. The incision, however, was lengthened enough so that the muscle was visualized fully. Sections for microscopic study were removed from the most damaged part of each muscle. The microscopic evidence suggests that a gain in strength by a partially paralyzed muscle occurs not through the formation of new fibers but through an overdevelopment or hypertrophy of the remaining undamaged cells. Pathologic changes are brought about primarily through denervation and secondarily from abnormal variations of tension in the muscle. The cellular changes from denervation begin with atrophy and progress to degeneration, disintegration and replacement changes. These pathologic stages due to secondary factors occur in muscle cells in the same way. Too much tension or overstretching results in minute tears, zonal degeneration and subsequent fibrosis, while too little tension produces changes identical with those produced by denervation. The secondary abnormalities may produce just as much weakness as the primary denervative changes. Secondary changes following immobility and disuse appear more severe than those following overactivity. Nothing much can be done for muscle cells which have lost their motor neurons and have regressed or are regressing. The knowledge that secondary changes do occur should be of practical value in planning preventive treatment.

Journal of Experimental Medicine, New York

75:135-246 (Feb.) 1942

Quantitative Experiments with Antibodies to Specific Precipitate: III. Antigenic Properties of Horse Serum Fractions Isolated by Electrophoresis and by Ultracentrifugation. H. P. Treffers, D. H. Moore and M. Heidelberger, New York.—p. 135.
LS Antigen of Vaccinia: I. Inhibition of L and S Antibodies by Substances in Treated Vaccine Dermal Filtrate. J. E. Smadel and T. M. Rivers, New York.—p. 151.
Id.: II. Isolation of Single Substance Containing Both L and S Activity. T. Shedlovsky and J. E. Smadel, New York.—p. 165.
Effect of Various Diets on Liver Damage Caused by Excess Cystine. D. P. Earle Jr. and J. Victor, New York.—p. 179.
Liver Damage and Urinary Excretion of Sulfate in Rats Fed *l*-Cystine, *dl*-Methionine and Cysteic Acid. D. P. Earle Jr. and F. E. Kendall, New York.—p. 191.
Cell State as Affecting Susceptibility to Virus: Enhanced Effectiveness of Rabbit Papilloma Virus on Hyperplastic Epidermis. W. F. Friedewald, New York.—p. 197.
Red Cell and Plasma Volumes (Circulating and Total) as Determined by Radio Iron and by Dye. P. F. Hahn, J. F. Ross, W. F. Bale, W. M. Balfour and G. H. Whipple, Rochester, N. Y.—p. 221.
Influence of Age on Susceptibility of Mice to St. Louis Encephalitis Virus and on Distribution of Lesions. J. L. O'Leary, Margaret G. Smith and H. R. Reames, St. Louis.—p. 233.

Journal of Lab. and Clinical Medicine, St. Louis

27:419-568 (Jan.) 1942. **Partial Index**

Systemic Histoplasmosis: Diagnosed Before Death and Produced Experimentally in Guinea Pigs. J. D. Reid, J. H. Scherer, P. A. Herbut and H. Irving, Richmond, Va.—p. 419.
Pathology of Atrophic Arthritis: Correlated Clinical and Laboratory Study. C. L. Steinberg, Rochester, N. Y.—p. 435.
Sodium Sulfapyridine Monohydrate Intravenously in Treatment of Lobar Pneumonia. A. Levitt, H. T. Schweitzer and K. Goldstein, Buffalo.—p. 443.
Average Length of Life of Red Corpuscle. Dona Gayler Graam, Terre Haute, Ind.—p. 448.
*Effect of Lowered Temperatures on Growth of Fibroblast in Vitro: Its Application to Wound Healing. M. E. Sano and L. W. Smith, Philadelphia.—p. 460.
Unusual P Wave in Chest Lead CF_R Following Spontaneous Pneumothorax. S. D. Burton and J. S. Mehlman, Chicago.—p. 465.
Plasma Albumin, Globulin and Fibrinogen in Healthy Individuals from Birth to Adulthood: II. "Normal" Values. Virginia Trevorrow, Margaret Kaser, Jean Paton Patterson and R. M. Hill, Denver.—p. 471.
Use of Dihydrotachysterol in Parathyroprivic Tetany: Report of Case. F. E. Harding, Los Angeles.—p. 497.
Comparative Physiologic Value of Injected Carotene and Vitamin A. June G. Lease, E. J. Lease, H. Steenbock and C. A. Baumann, Madison, Wis.—p. 502.
Oral Ascorbic Acid Tolerance Test and Its Application to Senile and Schizophrenic Patients. E. Stotz, B. M. Shinners and R. A. Chittick, Boston.—p. 518.
*Effect of Yeast and Muscle Adenylic Acid in Malnourished Persons with Pellagra and Peripheral Neuritis. R. W. Vilter, W. B. Bean and T. D. Spies, Cincinnati.—p. 527.

Growth of Fibroblast in Vitro.—Sano and Smith observed the behavior of the fibroblast in tissue culture at temperatures varying from 32 to 98.6 F., and on the basis of their observations they suggest that hypothermy be used more widely in wound healing. The reduction of temperature to between 77 and 86 F. gives optimal conditions for satisfactory wound healing: the cells grow vigorously, they pack closely and the circulation is slowed. Thus the products of metabolism are and remain in close contact with the cells, as the slowed blood stream is unable to carry them away. In addition the lowered

temperature is somewhat bacteriostatic and aids materially in checking infection. Finally, if epithelization is accomplished too rapidly the underlying granulation tissue tends to undergo regressive changes, the collagen contracts and a depressed secondarily contracted scar results, but if the process of repair is slowed the connective tissue is adequate in amount and compactly arranged, with relatively little collagen, and the final scar is minimal, with little or no retraction. The application of hypothermy in plastic surgery, in preventing the formation of keloid and in clearing up old lesions from osteomyelitis is a field to be investigated.

Adenylic Acid for Malnourished Persons.—Vilter and his co-workers point out that the role of adenylic acid in human nutrition is important and extremely diversified. Two to five days after daily intravenous injections of 50 mg. of adenylic acid from yeast or from muscle, ulcers in the mouths of 6 malnourished persons disappeared. In contrast, ulceration in the mouths of 3 persons with stomatitis but with no evidence of a dietary deficiency did not improve. Therapy with yeast or muscle adenylic acid to persons with pellagrous glossitis or subclinical symptoms of pellagra caused rapid improvement in strength and well-being and the disappearance of the burning sensation of the mucous membranes. Giving yeast adenylic acid to 6 persons with peripheral neuritis who obtained no benefit from brewers' yeast or thiamine hydrochloride brought about spontaneous relief from pain and hyperesthesia; the perception of light touch improved, and the patients were able to walk without pain. Because the therapy produced immediate reactions and concomitant electrocardiographic changes the authors do not recommend adenylic acid for general therapeutic use. Nicotinic acid, thiamine hydrochloride and a diet rich in protein and calories continue to be the most efficient therapeutic agents for most malnourished persons with ulcerative stomatitis and peripheral neuritis.

Journal of Urology, Baltimore

47:1-58 (Jan.) 1942

Treatment of Wilms' Tumor. J. T. Priestley and T. L. Schulte, Rochester, Minn.—p. 7.
Sulfacetimide or Sulfamyd (Schering): Clinical Study of Efficiency and Toxicity in Urinary Tract Infections and Comparison with Sulfanilamide Therapy. R. J. Prentiss and J. F. Kanealy, Iowa City.—p. 11.
Prostatic Obstruction in Young Adults: Report of Five Cases. H. A. Fowler, Washington, D. C.—p. 16.
Physiology of Testis and Application of Male Sex Hormone. C. R. Moore, Chicago.—p. 31.
Significance of Randall's Papillary Lesions in Causation of Renal Calculi. K. T. Kjølhede and H. K. Lassen, Copenhagen, Denmark.—p. 45.

Kansas Medical Society Journal, Topeka

43:1-44 (Jan.) 1942

Prevention and Control of Surgical Infections in General Hospital. S. L. Koch, Chicago.—p. 1.
Recognition and Treatment of Curable Diseases of Heart. M. Snyder, Salina.—p. 6.
Chronic Nephritis and Hypertension—Clinical Aspects. H. N. Tiben, Wichita.—p. 11.

Laryngoscope, St. Louis

52:1-82 (Jan.) 1942

Review of Articles on Tuberculosis in Field of Otolaryngology Chiefly for Late 1940 and Early 1941. F. R. Spencer, Boulder, Colo.—p. 1.
Cancer of Paranasal Sinuses. W. L. Watson, New York.—p. 22.
Congenital Webs of Larynx. H. E. McHugh, Montreal, Canada, and W. E. Loch, Baltimore.—p. 43.
Cough. M. S. Lloyd, New York.—p. 66.
The "Blocked Ear" of the Caisson Worker. R. Almour, New York.—p. 75.

Laval Médical, Quebec

7:1-74 (Jan.) 1942. **Partial Index**

Grave Ulcerative Colitis. J. P. Dugal, Quebec, Canada.—p. 11.
*Treatment of Congenital Clubfoot (from Birth to Four Years of Age). L. P. Roy, Quebec, Canada.—p. 16.
Metrazol and Epilepsy. G. H. LaRue and A. Pelletier, Quebec, Canada.—p. 22.

Treatment of Congenital Clubfoot.—Roy discusses the incidence, sex distribution, hereditary character and various types of clubfoot. Ombredanne divides the evolution of talipes into three periods: 1. The period of complete reducibility, during which reduction can be accomplished by hand and without violence; this is possible up to the age of 15 days or even a year. 2. The period of relative irreducibility, during which osseous reposition is hindered by ligamentous, tendinous or cutaneous retractions but during which it is possible to remove these obstacles; this is the period between 2 and 4 years. 3. The period of absolute irreducibility, which ensues after the age of 4 years. The prognosis of congenital talipes varies with age, degree of deformity and rigidity, treatment and the period during which the child is observed, because relapse is possible even in a well reduced clubfoot. Early redressement is now almost universally applied. Some surgeons wait until the child is about a year old to perform instrumental redressement. The author thinks that early and mild manual redressement is infinitely better than the brutal manipulations and that treatment should begin when the child is 8 days old. The first deformities to be corrected are the adduction and the supination. While one hand grasps the heel, the other holds the anterior portion of the foot, and abduction is effected. Thus the internal edge tends to become convex and the external edge concave. Against supination one hand grasps the region of the ankle while the other holds the foot and turns it in order to lower the internal and raise the external border. It is necessary to respect the equinism in order to correct the first two deformities; this makes a more solid support. Up to the age of 2 or 3 months these maneuvers can be made without anesthesia; after that a little anesthetic should be given. It is better to correct a clubfoot in several sessions at intervals of several weeks than to make a redressement forcé all at once. Fixation is even more important than reduction. In the newborn, even up to 1 month, the author employs elastoplast, but some workers employ plaster of paris. If a child between 12 and 18 months of age, even perhaps up to 2 years, is brought to the physician a somewhat forced manual redressement is necessary under general anesthesia, which in about 80 per cent of the cases must be accompanied by tenotomy of the achilles tendon. A plaster of paris boot is put on for six to eight weeks and may have to be replaced later. The treatment of the period of relative irreducibility, that is, of the age between 2 and 4 years, consists in forced manual redressement followed by use of a plaster cast for two months; tenotomies of the internal lateral section are often necessary.

Missouri State Medical Assn. Journal, St. Louis

39:1-28 (Jan.) 1942

Ovarian Hormones and Their Clinical Uses. W. M. Allen, St. Louis.—p. 1.
Spontaneous Interstitial Mediastinal Emphysema: Report of Case. J. P. Murphy and L. B. Zeis, St. Louis.—p. 5.
Foot Conditions. M. B. Roche, St. Louis.—p. 7.
Congenital Duodenal Obstruction. A. D. Vail and E. J. Schwartz, Springfield.—p. 12.

39:29-64 (Feb.) 1942

Sarcoidosis: Report of Two Cases with Pulmonary Involvement. H. I. Spector, St. Louis.—p. 29.
*Prophylaxis in Epidemic Influenza. S. E. Sulkin and J. C. Edwards, St. Louis.—p. 33.
Abnormal Mental Reactions of Old Age. G. W. Robinson Jr., Kansas City.—p. 36.
Acute Appendicitis: Present Day Concepts of Treatment. E. V. Mastin, St. Louis.—p. 41.
Thyroidectomy: Study of 200 Consecutive Cases. P. F. Stuckey and M. R. Bay, Kansas City.—p. 43.
*Effect of Mineral Water on Kidney Function Tests. R. O. Muether, G. T. Flynn and R. A. Mezera, St. Louis.—p. 45.
Staghorn Calculus Removal by V Shaped Nephrotomy. L. H. Pollock, Kansas City.—p. 48.
Vesical Neck Obstruction: Result of Twelve Years' Study of Cases Encountered in Country Practice. G. W. Gay, Trenton.—p. 51.
Convulsive Shock Therapy Induced by Electricity. P. Shelton, Kansas City.—p. 53.

Prophylaxis in Epidemic Influenza.—Sulkin and Edwards state that the prophylaxis of epidemic influenza in animals and human beings with the complex vaccine containing influenza A and distemper virus, while not entirely effective, produces immunizing antibodies. The neutralizing antibodies that result from the administration of the vaccine persist for six months. Although many instances of influenza occurred in the institutions in which the authors' clinical experiments were carried out, the disease did not develop in any of the vaccinated persons.

Effect of Mineral Water on Tests of Renal Function.—Muether and his associates determined the effect of a particular mineral water on renal function. Of 16 patients with a urea clearance of 50 or more per cent of normal when they used tap water, 12 showed an increased urea clearance after four days of taking the mineral water and 4 showed a definite decrease. Of 9 patients whose urea clearance with tap water was less than 50 per cent of normal, 7 showed an increased and 2 a decreased ability to clear urea after using the mineral water. Twenty-four tests for the total output of phenolsulfonphthalein were done on 21 patients who had less than a 50 per cent output when they used tap water. The use of the mineral water improved the phenolsulfonphthalein excretion in twenty-one, or 87.5 per cent, of the tests. The phenolsulfonphthalein excretion of only 3 patients was lower after the use of the mineral water than it was with tap water. Twelve of fifteen tests on 13 patients who had a phenolsulfonphthalein excretion of more than 50 per cent with tap water showed an increased output when mineral water was used. The apparent effectiveness of the mineral water to improve the renal excretion of certain substances warrants further investigation.

Nebraska State Medical Journal, Lincoln

27:41-76 (Feb.) 1942

Practical Considerations in Present Day Chemotherapy. A. E. Brown and W. E. Herrell, Rochester, Minn.—p. 41.
Chemotherapy in Acute Communicable Diseases. E. S. Wegner, Lincoln.—p. 47.
Chemotherapy in Otitis Media and Mastoiditis. P. N. Morrow, Omaha—p. 51.
Chemotherapy in Upper Respiratory Infections, with Special Reference to Throat. G. C. O'Neil, Omaha.—p. 55.
Ophthalmia in Newborn. W. H. Morrison, Omaha.—p. 58.
Sequela of Knee Ligament Strain: Pellegrini-Stieda's Disease (Metacondylar Traumatic Osteoma). W. R. Hamsa, Omaha.—p. 62.
Acute Peritonitis—Preoperative Immunization with Amfetin. F. J. Murray, Omaha.—p. 65.

New England Journal of Medicine, Boston

226:1-36 (Jan. 1) 1942

Blast and Concussion in the Present War. J. F. Fulton, New Haven, Conn.—p. 1.
Enterococcic Endocarditis: Report of Two Cases. D. Skinner and J. E. Edwards, Boston.—p. 8.
Left Inguinal Hernia with Acute Meckel's Diverticulitis and Peritonitis: Report of Case. R. Lium and S. T. Ladd, Portsmouth, N. H.—p. 15.
Irradiation in Treatment of Cancer of Breast. F. W. O'Brien and E. McDonald, Boston.—p. 17.
Medical Aspects of Obstetrics. J. A. Smith, Boston.—p. 21.

226:37-80 (Jan. 8) 1942

Middlesex South and Massachusetts Medicine. H. G. Giddings, Newton Centre, Mass.—p. 37.
*Hyperactive Cardioinhibitory Carotid Sinus Reflex as Aid in Diagnosis of Coronary Disease: Its Value Compared with That of Electrocardiogram. L. H. Sigler, Brooklyn.—p. 46.
*Treatment of Angina Pectoris with Testosterone Propionate: Preliminary Report. M. A. Lesser, Boston.—p. 51.
Use of Aspirating Needle in Diagnosis of Solitary Renal Cyst. B. C. Wheeler, Worcester, Mass.—p. 55.
Abdominal Surgery. A. W. Allen, Boston.—p. 57.

Carotid Sinus Reflex.—Sigler determined the relative frequency of the cardioinhibitory carotid sinus reflex and of abnormalities in the electrocardiogram of 1,073 patients with coronary disease. Observations show that the hyperactive cardioinhibitory carotid sinus reflex occurs more frequently in the disease than do abnormalities in the electrocardiogram. Therefore the test may perhaps be considered of more diagnostic value than the electrocardiogram in recognition of the disease. However, like any other test or method of examination, use of the reflex has its shortcomings and pitfalls: The reflex does occur in disorders other than coronary disease, and it may be absent in coronary disease. It may perhaps be considered a definite sign in coronary disease if it occurs as an independent phenomenon unassociated with other reflexes of the carotid sinus group, such as a definite fall in blood pressure, dizziness, sensory disturbances and syncope, if it occurs as the principal manifestation of the sinus reflex and if it appears after comparatively slight pressure on the carotid sinus region and no other vagal disturbance occurs. Under such circumstances the selective augmentation of the induced vagal impulse is in the cardiac ganglions rather than in the ganglions of vagal centers in the medulla. If such augmentation occurred in the medullary centers, it would conceivably affect the entire vagal system. Of the 784 men in the series 91.3 per cent and of the 289 women 72.6 per cent showed the cardioinhibitory response, whereas the electrocardiograms of only 63 per cent of the men and 71.9 per cent of the women showed abnormalities. The explanation for the frequency of the hyperactive reflex in coronary disease is at present purely theoretical. It may be due to local cardiac ischemia which lowers the resistance in the vagal ganglions and in the myoneural junctions or which produces some chemical changes that sensitize the vagus nerves locally.

Testosterone Propionate Therapy of Angina Pectoris.—Lesser reports that 20 men and 4 women from 40 to 77 years of age with an established diagnosis of angina pectoris were treated with testosterone propionate. The drug was administered intramuscularly every second to fifth day in 25 mg. doses for a total of five to twenty-five injections, with an average of eleven injections. The frequency, severity and duration of attacks were diminished in all patients, and the patients have been able to increase considerably their physical activity without precipitating an attack. The beneficial effects persisted for two to twelve months after treatment was withdrawn. The improvement in men was much greater than that in women. No improvement followed control injections of sesame oil, although the control patients responded when given testosterone propionate therapy. Untoward effects were not observed. Fluoroscopic examinations, serial kymograms and electrocardiograms revealed no uniform result from the therapy. Testosterone propionate may be a valuable drug in the treatment of angina pectoris, and the results warrant further investigation.

New Jersey Medical Society Journal, Trenton

39:1-56 (Jan.) 1942

The Doctor in the Army. R. A. Kilduffe, Atlantic City.—p. 5.
The Hospital in Civilian Defense. H. van Z. Hyde, New York.—p. 12.
Erythremic Response to Liver Therapy in Treatment of Pernicious Anemia. P. B. Ferrary, Totowa.—p. 19.
Anorectal Pain, Its Causes and Treatment. J. Gerendasy, Elizabeth.—p. 21.
Differential Diagnosis Between Acute Diseases of Chest and of Abdomen. G. F. Muller, Philadelphia.—p. 27.
Differential Diagnosis in Peripheral Vascular Disease. F. C. Dinge, East Orange.—p. 30.

New Orleans Medical and Surgical Journal

94:311-360 (Jan.) 1942

Development of Legal Psychiatry in Louisiana. R. C. Young, Covington, La.—p. 311.
Status of Psychiatry in Louisiana. H. R. Unsworth, New Orleans.—p. 318.
Spastic Colitis in Infancy and Childhood. C. J. Bloom, New Orleans.—p. 322.
*Vitamin-Stilbestrol in Treatment of Hypo-Ovarianism. W. H. Byrne, J. C. Weed, B. B. Weinstein and C. G. Collins, New Orleans.—p. 330.
Anlagen and "Rest" Tumors of Lung: Their Protean Histologic Patterns in Bronchiogenic Neoplasia. W. H. Harris and H. J. Schattenberg, New Orleans.—p. 333.
*Report on Recently Observed Cases of Weil's Disease. C. J. Wilen, J. R. Snavely and F. E. Bruno, New Orleans.—p. 338.
Weil's Disease (Spirochetal Jaundice): Report of Case. J. A. Durand, Baton Rouge, La.—p. 341.
Oral Administration of Mercurial Diuretic in Treatment of Congestive Heart Failure. K. L. Dickens, New Orleans.—p. 344.

Diethylstilbestrol for Hypo-Ovarianism.—Byrne and his associates state that the addition of vitamin complexes to diethylstilbestrol given to 35 patients with physiologic ovarian failure and to 12 with ovarian deficiency resulting from surgical procedures did not minimize the incidence of nausea occasioned by diethylstilbestrol alone.

Weil's Disease.—Wilen and his co-workers point out that during August and September 1941 a diagnosis of Weil's disease was made on 4 male patients at the Charity Hospital. All 4 patients had chills, a sudden onset with fever, prostration, muscular aching pains, jaundice and leukocytosis with a white cell count not exceeding 15,000. An interesting feature in the history of 2 of the patients was the fact that they were neighbors and that there were jaundiced cattle in the immediate vicinity of their homes. The serum of one of these cows failed to agglutinate Leptospira icterohemorrhagiae and Leptospira canicola, and inoculations into guinea pigs with blood from this

cow proved negative. However, the owner of the cow and one of his employees gave a history of a recent severe illness of ten days with a sudden onset associated with fever, prostration, smoky urine and questionable jaundice. Laboratory studies were negative for Leptospira icterohemorrhagiae.

New York State Journal of Medicine, New York

42:97-192 (Jan. 15) 1942

Present Status of Therapeutic Regional Analgesia. E. A. Rovenstine and H. M. Wertheim, New York.—p. 123.
Ophthalmoscopic Findings versus Sinusitis. A. J. Bedell, Albany. —p. 128.
*Dissemination of Tubercle Bacilli from Fresh Autopsy Material. R. A. Sloan, Buffalo.—p. 133.
Rectocele: Constant Lesion Frequently Overlooked in Standard Repairs. J. W. Davies, New York.—p. 135.
Problem of Pruritus Vulvae. J. E. King, Buffalo.—p. 140.
Chronic Hypertrophic Osteoarthritis in Cervical Spine with Radiculitis: Report of Forty Cases with Review of Literature, Together with Some Notes on Effective Methods of Treatment—Part I. L. C. Kelly, New York.—p. 144.

Dissemination of Tubercle Bacilli from Fresh Necropsy Material.—In trying to determine the validity of the statement that fresh necropsy material is relatively innocuous as a contaminent of air, Sloan made a glass-enclosed elevating shield and placed it 8 inches (20 cm.) above the pulmonary specimens to be examined from 10 patients who had died from tuberculosis. Necessary precautions were taken before and during the examination so that all drafts from fans and open windows were eliminated. He observed that necropsy methods which make use of a compression technic contaminate the atmosphere in the immediate vicinity. Within the limitations of his study, fresh tuberculous lungs are definitely dangerous and are a potent source of atmospheric contamination. Proper methods of protection should be devised.

North Carolina Medical Journal, Winston-Salem

3:1-52 (Jan.) 1942

Medical Management of Bleeding Gastric and Duodenal Ulcer. C. G. Reid, Charlotte.—p. 1.
Cesarean Section: Its Incidence and Fetal Mortality in Some Cities in North Carolina. C. H. Mauzy, Winston-Salem.—p. 5.
Public Health Problems Created in Flood Disasters. R. F. Young, Halifax.—p. 8.
Intranasal Tumors. B. E. Ellis, Indianapolis.—p. 12.
Recurrent Urolithiasis. G. A. Hawes, Charlotte.—p. 16.
Present Status of Male Sex Hormone. F. K. Garvey, Winston-Salem. —p. 22.
*Some Features of "Virus Pneumonia." J. Moss, Durham.—p. 27.
Occupational Dermatoses. P. G. Reque and P. L. Williams, Durham. —p. 30.
Combination of Clavicular Cross and Figure of Eight Dressing in Treating Fractures of Clavicle. W. E. Miller, Whiteville.—p. 33.

Virus Pneumonia.—Moss reports 3 cases of probable "virus pneumonia." The onset was characterized by a harassing, at times paroxysmal, cough, which was nonproductive or productive of only a small amount of mucopurulent sputum. There was no pleurisy. Bacteriologic studies failed to demonstrate the etiologic organism. Repeated leukocyte counts were normal or only slightly elevated. The temperature was rather high during the first few days of the disease, and there was a relative bradycardia until the temperature fell by lysis on the fifth to the seventh day. Two of the 3 patients showed no physical sign of pneumonia until the lesion was revealed in a roentgenogram. Physical signs, when present, were those of incomplete consolidation. The disease was refractory to sulfonamide therapy. Although deaths from "virus pneumonia" have been reported, the disease is relatively benign. It is highly communicable (the author's patients comprised the original patient and his two nurses).

Public Health Reports, Washington, D. C.

57:33-64 (Jan. 9) 1942

Sanitation and Bacteriology of Public Eating Utensils: Investigation of Public Eating and Drinking Establishments in Providence, R. I. M. P. Horwood and P. J. Pesare.—p. 33.
Antitularemic Serum. E. Francis and L. D. Felton.—p. 44.

Southern Medical Journal, Birmingham, Ala.

35:1-122 (Jan.) 1942. **Partial Index**

Ureterointestinal Implantation: Experimental and Clinical Results with New Method. H. J. Jewett, Baltimore.—p. 1.
Intracranial Vascular Accidents: Medical or Surgical. R. M. Klemme, St. Louis.—p. 11.
Procaine Hydrochloride Infiltration in Obstetrics. W. Bickers, Richmond, Va.—p. 17.
Anuria, Occurring During Latter Part of Pregnancy or Following Labor. C. E. Gaupin, Louisville, Ky.—p. 21.
Perforation of Aspirated Cedar Leaf Through Chest Wall. F. H. Bowen, Jacksonville, Fla.—p. 24.
*Use of Various Sulfanilic Acid Derivatives in Trachoma. K. W. Cosgrove and L. K. Hundley, Little Rock, Ark.—p. 43.
Sulfaguanidine in Treatment of Bacillary Dysentery. Lydia B. Edwards, Baltimore.—p. 48.
Use of Sulfonamides in Clean Operative Wounds. J. A. Key, St. Louis. —p. 55.
Boric Acid. H. King, Nashville, Tenn.—p. 59.
Some Gynecologic Uses of Chemotherapy. J. L. McKelvey, Minneapolis.—p. 62.
Syphilis Among Selective Service Registrants in a Southern County. A. J. Perley, Lafayette, Ala.—p. 65.
Roentgen Rays in Diagnosis of Pulmonary Tuberculosis. R. G. Giles and C. J. Koerth, San Antonio, Texas.—p. 70.
Sinusitis in Children. J. J. Shea, Memphis, Tenn.—p. 74.
Tomorrow's Children—Our Responsibility Today. W. W. Quillian, Coral Gables, Fla.—p. 77.
The Psychiatrist Looks at War. D. C. Wilson, Charlottesville, Va.—p. 79.

Sulfanilic Acid Derivatives for Trachoma.—Cosgrove and Hundley state that 1,866 patients from the Arkansas Trachoma Service have been given various sulfanilic acid derivatives. The trachoma of 402 (21.5 per cent) was improved, that of 1,359 (73 per cent) was arrested and that of 105 (5.5 per cent) was not improved. The visual impairment of 74.7 per cent of the patients was arrested, that of 19.9 per cent was improved and that of 5.4 per cent was not improved. The improvement in vision has been from 5 to 80 per cent. As 8.7 per cent of the patients have complications which require surgical intervention and 3.5 per cent have been observed for less than three months, the total in which trachoma can be arrested is near 90 per cent. The results show that a sufficient dose of any one of the sulfonamides is equally effective. An average of 1.85 mg. per hundred cubic centimeters of free sulfanilamide in the blood is required to arrest trachoma. Oral administration, supplemented by local application, permits the use of smaller doses. Ambulatory treatment is possible, and there is no danger of serious reactions.

Surgery, Gynecology and Obstetrics, Chicago

74:1-128 (Jan.) 1942

*Erythroblastosis Neonatorum: Obstetric-Pathologic Study of Forty-Seven Cases. C. T. Javert, New York.—p. 1.
Treatment of Fresh Traumatic and Contaminated Surgical Wounds. J. D. Bisgard and C. P. Baker, Omaha.—p. 20.
Study of Mechanics of Bile Flow: I. Responses to Physiologic Intravenous Solutions. D. D. Kozoll and H. Necheles, Chicago.—p. 27.
*Clinical Studies on Antihemorrhagic Effects of New Water Soluble Vitamin K-like Substance. M. Davison, F. Steigmann and H. L. Udesky, Chicago.—p. 35.
Bacteremic Staphylococcic Infection. C. Lyons, Boston.—p. 41.
Carcinoma of Esophagus: Turck's Operation, Recovery. O. Ivanissevich and R. C. Ferrari, Buenos Aires, Argentina.—p. 47.
*Lung Injury Due to Detonation of High Explosive. J. D. King and G. M. Curtis, Columbus, Ohio.—p. 53.
Caudal Anesthesia: Its Use in Obstetrics. A. H. Lahmann and A. C. Mietus, Milwaukee.—p. 63.
Putrid Empyema. H. C. Maier, New York, and E. J. Grace, Brooklyn. —p. 69.
Mammary Carcinoma: Review of 2,636 Cases. I. Macdonald, Los Angeles.—p. 75.
Carcinoma of Colon and Rectum: Study of Metastasis and Recurrences. C. W. Mayo and C. P. Schlicke, Rochester, Minn.—p. 83.
Artificial Ileocecal Valve. J. A. Glassman, Chicago.—p. 92.
Treatment of Obstructive Hydrocephalus in Adults. J. C. White and J. J. Michelsen, Boston.—p. 99.
Fine Alloy Steel Wire Sutures: Experimental and Clinical Study. Y. K. Wu and H. C. Pai, Peiping, China.—p. 110.
Peritoneal Aspiration in Diagnosis of Strangulated Bowel. F. C. Hill, B. J. O'Loughlin and M. Stoner, Omaha.—p. 121.
Edema of Pancreas. H. L. Popper and H. Necheles, Chicago.—p. 123.

Neonatal Erythroblastosis.—Javert separates neonatal erythroblastosis into hydropic, icteric, anemic, hemorrhagic and unclassified types. In his series of cases the total incidence of erythroblastosis was 1:438 and the fetal mortality caused by the disease was 3.2 per cent. Of the mothers 92 per cent were

multiparous. A high incidence of preeclamptic toxemia existed among the mothers of hydropic and icteric infants. Excessive uterine enlargement was due to the weight of the infant and the placenta and not to the hydramnios. The hydropic infants were born a month or more prematurely, whereas the icteric infants were born nearer term. Asphyxia within the uterus, after birth or during neonatal life was a prominent symptom of the fetus. Therefore, if erythroblastosis is suspected all prepartum analgesia and anesthesia is interdicted. Local infiltration can be used for an episiotomy. The incidence of postpartum hemorrhage was increased, particularly among mothers of hydropic infants. The incidence of operative delivery because of fetal distress was 56 per cent. The patient's obstetric history should replace the "family history," as the disease is not strictly familial. Parity is important, as the incidence of erythroblastosis after its initial appearance is approximately 50 per cent. If the first born had the disease, the subsequent incidence is nearly 100 per cent. Studies of the maternal blood usually gave normal results except for an increased icteric index and uric acid. The serum proteins were generally reduced. Several of the mothers were Rh negative. The infants had a high incidence of congenital anomalies. The increased number and ratio of the erythroblasts and the normoblasts in the cord blood are important diagnostic criteria. The immediate treatment of erythroblastosis is to combat asphyxia. The mortality for the hydropic infants was 100 per cent, for the icteric 54 per cent. The Buddha-like habitus of the fetus in utero seen on roentgen study is an important diagnostic feature. Paternal studies revealed that the fathers were Rh positive. The probable pathogenesis of erythroblastosis is hepatic dysfunction. Erythroblastosis runs part of its course in utero, and the obstetrician and the pediatrician are in a strategic position for antepartum diagnosis.

Antihemorrhagic Effects of Vitamin K-like Substance.—Davison and his co-workers discuss their experience with the new water soluble vitamin K-like preparation the tetra sodium salt of 2-methyl-1, 4-naphthohydroquinone diphosphoric acid ester, or preparation N-123, in 41 patients. Most of the patients had disease of the biliary tract or the liver associated with jaundice, and a few had gastrointestinal disturbances or severe sepsis conducive to vitamin K deficiency. The prothrombin level of the blood was determined, and a daily dose of 10 mg. of the preparation was given for six days. The blood prothrombin levels were determined daily for eight days, and on the seventh and eighth days after treatment was begun the clotting time was also determined. The prothrombin level of most of the patients rose to normal limits within twenty-four to forty-eight hours after the initial dose of the preparation. After a 100 per cent level was reached it could be maintained for forty-eight to seventy-two hours without further medication unless there were fluctuations during medication. The level fluctuated when existing jaundice was aggravated or when a high fever, profuse vomiting or anorexia appeared suddenly. The rise of the prothrombin level was retarded in patients with pyloric obstruction, hepatic damage and severe sepsis and after colostomy. Patients with K avitaminosis from uncomplicated obstructive jaundice responded promptly to the daily administration of 10 mg. of preparation N-123. Patients with hepatic damage interfering with vitamin K storage and utilization and those with sepsis and pathologic changes in the gastrointestinal tract responded less promptly, less completely and for a shorter period.

Injury to Lung from Detonation of High Explosive.—King and Curtis describe the effects on the body of the detonation of a high explosive, particularly on the pulmonary system, and compare them with those observed in civilian life in peace time. Explosives are of two types: low and high. Low explosives have explosion velocities of a few thousand or less feet per second in contrast to high explosives, which have velocities of 5,000 to 25,000 feet. At every point in the immediate neighborhood the detonation of a high explosive sets up a momentary wave of high pressure and then a negative "suction" pressure, owing to the fact that the positive compression wave reduces the density of the air behind it to below normal atmospheric pressure. The wave of pressure is highest in the immediate region of the explosion and falls off rapidly as it moves away. The prime characteristic of a detonation is that whereas the disturbance moves forward the objects through which it travels do not move with it but oscillate backward and forward. Thus the violence of a blast can bruise the walls of the lung as if they had been struck by a solid object. The pulmonary damage from the detonation of a high explosive is characterized by alveolar rupture and hemorrhage. Examination of persons killed by explosion (without obvious external injury) may reveal a tear of the lung or a bulbar hemorrhage, or in those who live for a time the meningeal vessels may be ruptured and the viscera may be lacerated. The results of experimental studies confirm the clinical and postmortem observations that pulmonary lesions predominate and substantiate the view that the lesions are due to the impact on the thoracic wall of the pressure component of the blast wave. Lesions of the central nervous system also may be produced by a blast. The mechanism responsible for the cerebral lesions has been explained as due to the hydraulic-like pressure that develops from the sudden compression of the thoracic cage and the consequent violent back pressure on the venous side. The pulmonary injury may be prevented by the use of air raid shelters, ditches, holes and gutters, by just lying flat on the ground in the prone position (the back of the thorax yields less to injury than the front part) or by covering the chest with sponge rubber or some similar material. The early recognition of the injury is of prime therapeutic importance. Complete rest is imperative, and judging from the condition of the lungs at necropsy and clinically from the embarrassed breathing every effort should be made to avoid any additional trauma to the lungs. Oxygen therapy may be worthy of more extensive use. The awareness that such damage may occur should stimulate all physicians to look for it among air raid casualties.

Surgery, St. Louis

11:169-332 (Feb.) 1942

*Myeloscopy: Intraspinal Endoscopy. J. L. Pool, New York.—p. 169.
Fractures of Maxilla: Describing a Simplified Appliance for Craniomaxillary Support and Fixation. C. W. Waldron and S. G. Balkin, Minneapolis.—p. 183.
Some Observations on Quick Hippuric Acid Test in Hepatic Function. D. A. Campbell, Ann Arbor, Mich.—p. 195.
Postoperative Chlorrhea: Report of Case, with Profound Peripheral Circulatory Collapse (Shock) Due to Excessive Loss of Fluid and Electrolytes Through T Tube. F. R. Keating Jr., Marschelle H. Power and J. T. Priestley, Rochester, Minn.—p. 198.
*Hemangioma of Liver: Discussion of Symptomatology and Report of Patient Treated by Operation. H. B. Shumacker Jr., Baltimore.—p. 209.
Splenectomy: Method of Mobilizing Spleen in Presence of Dense Adhesions. J. D. Rives, New Orleans.—p. 223.
Welch Bacillus Infections Arising from Stomach and Duodenum. W. C. Quinn, J. W. Lord Jr. and L. J. Wade, New York.—p. 229.
Gas Gangrene of Abdominal Wall. W. C. Quinn, J. W. Lord Jr. and L. J. Wade, New York.—p. 233.
Peritonitis: III. Studies in Peritoneal Protection, with Particular Reference to Action of Sulfonamide Drugs in Experimental Peritonitis. H. D. Harvey, F. L. Meleney and J. W. R. Rennie, New York.—p. 244.
*Exudative Interstitial Nephritis (Pyelonephritis). E. T. Bell, Minneapolis.—p. 261.
Observations on Distribution and Transport of Gas in Gastrointestinal Tract of Infants and Young Children. J. R. Paine and C. B. Nessa, Minneapolis.—p. 281.
Cystic Degeneration of Ovaries: Experimental Study. J. C. Weed and C. G. Collins, New Orleans.—p. 292.

Myeloscopy.—Pool states that since the principle of intraspinal endoscopy, adapted to the diagnosis of lesions affecting the cauda equina and the lowermost portion of the spinal cord, was suggested four years ago nearly 400 "myeloscopic" examinations have been done. The instrument devised for the purpose may be introduced between lumbar spinous processes in much the same manner as a lumbar puncture needle. Trauma to nerve roots has not ensued. The conditions to be recognized by myeloscopy are varicose vessels, arachnoid adhesions of post-traumatic or postinflammatory origin, neoplasms, inflamed nerve roots associated with neuritis and herniated nucleus pulposus or hypertrophied ligamentum flavum. Despite the loss of 5 to 15 cc. of cerebrospinal fluid during myeloscopy, the incidence of postpuncture headache has not been any greater than that which follows a lumbar puncture. The explanation for this may be that the procedure is carried out with the patient in the upright position so that intracranial dynamics accommodate themselves as the spinal fluid flows out. Myeloscopy has revealed large collections of epidural fluid two to

four days after lumbar puncture, demonstrating that spinal fluid can continue to leak for some time after a lumbar tap. Therefore, myeloscopy should be delayed for at least five days after a lumbar puncture has been done; otherwise the procedure may be difficult, as the hydrostatic tension of the dural and arachnoid membranes will have been lost as a result of the leak. Myeloscopy has not yet been performed over the spinal cord, although it was done successfully within the cisterna magna of an anesthetized dog. The myeloscope has been used for intraventricular visualization through trephine openings in the human skull, and attempts are now in progress to study action currents from the nerve roots of the cauda equina. Myeloscopy will aid in the differential diagnosis of operable and inoperable lesions of the cauda equina and the lower portion of the spinal cord. It may often rule out post-traumatic malingering. The necessity of injection of iodized oil and exploratory laminectomy may be obviated by preliminary myeloscopy. Inoperable conditions depicted by myeloscopy are various types of varicose veins of the cauda equina, arteriosclerosis of the spinal cord and metastatic neoplasms.

Hemangioma of Liver.—Shumacker encountered a large hepatic hemangioma during a laparotomy which required the decision whether it was the cause of the patient's symptoms and whether resection would relieve the distress. He reviews 66 similar cases reported in the literature. The tumor of 56 of the 67 patients was resected. The youngest patient was 6 years old and the oldest 76. Fifty-one of 62 patients on whom data are available were females. The initial complaint of the patients was of a mass in the epigastrium or of some equivalent symptom. Other complaints were weakness, evening fever, slight local discomfort, a sense of weight, fulness or pressure in the upper part of the abdomen, dysmenorrhea, dysuria, pain in the back of the legs and severe or mild epigastric pain. Nausea, vomiting and anorexia were common. In 3 in whom the hemangioma ruptured, the illness was of short duration and suggested acute appendicitis, ruptured tubal pregnancy or peritonitis. In most of the others the complaints were chronic, beginning in some instances ten or twenty years before operation. The average duration of symptoms was nearly five years. In 54 an epigastric tumor was palpable at the time of operation. The symptoms of only 7 suggested disease of the gallbladder or of the biliary tract. On palpation nothing characteristic was observed about the tumor. The correct preoperative diagnosis was made on only 2 patients. Only 1 of the 56 patients operated on died. Various procedures were employed. Adequate mobilization of the liver, through division of the ligamentous attachment to the diaphragm and temporary compression of the hilar structures, is helpful in controlling bleeding. The tumor should never be cut into nor should it be aspirated. The real danger associated with hemangioma of the liver is rupture of the tumor. In bleeding from a hemangioma better results may be expected from resection than from packing. There were 5 deaths among the 11 patients whose tumor was not removed. Contributing factors were spontaneous rupture of the tumor before, during or after operation or bleeding from tapping or incising the tumor at operation. Two patients were treated successfully with the roentgen ray; 1 had an inoperable tumor of the right lobe and the other a tumor in the right lobe several months after a hemangioma of the left lobe had been resected. In general, most of the patients were relieved of their complaints after the tumor had been resected.

Exudative Interstitial Nephritis.—Bell states that in subjects seen at necropsy the obstructive form of pyelonephritis is about twelve times as frequent as the nonobstructive type. The age and sex distribution corresponds with that observed in hydronephrosis. The symptoms are usually overshadowed by those of hydronephrosis. Renal infection is present at necropsy about twice as often (61 to 83 per cent) in obstruction of the lower portion of the urinary tract as in ureteral obstruction above the bladder (23 to 46 per cent). The incidence of chronic hypertension in hydronephrosis is not greater than that in a control population of corresponding age. Cortical abscesses are frequently seen post mortem, but only 40 typical instances of acute nonobstructive pyelonephritis were observed among more than 32,000 necropsies. Only 14 examples of chronic bilateral nonobstructive pyelonephritis were encountered. The available evidence indicates that this disease seldom causes chronic hypertension. The blood pressure of 5 patients has been reported to remain normal for more than one year after a unilateral nephrectomy for chronic atrophic pyelonephritis. Therefore there may be some other explanation for the success of the treatment in these cases, since many failures have been observed. In unilateral renal ischemia produced by Goldblatt's method the blood pressure returns to normal if the ischemic kidney becomes severely atrophic. The thick walled arteries in atrophic pyelonephritis represent disuse atrophy and not primary vascular disease.

Tennessee State Medical Assn. Journal, Nashville

34:463-506 (Dec.) 1941

Lesions of Cervix. W. L. Williamson, Memphis.—p. 463.
Pioneer Physicians and Medicine in Middle Tennessee. T. V. Woodring, Nashville.—p. 469.

35:1-38 (Jan.) 1942

*Formation and Use of Plasma. M. Semoff, Chattanooga.—p. 1.
Alcoholism: Some "Causes" and Treatment. M. Moore, Boston.—p. 3.
Practical Treatment of Cardiac Arrhythmias. J. A. Kennedy, Nashville.—p. 13.
Endocrine Therapy in Obstetrics and Gynecology. J. C. Burch and G. E. Kinzel, Nashville.—p. 17.

Formation and Use of Plasma.—Semoff believes that a practical and simple method of preparing and storing blood plasma in a small hospital or clinic is the Baxter vacuum technic. A series of 500 cc. flasks, containing the proper diluents and a partial vacuum, a machined valve, needles and a donor are all that is needed. The entire system is a closed one, safeguarded by rubber vacuum seals. Merthiolate is added as an extra precaution. A further technic for diluted plasma makes use of a 1,000 cc. flask which contains 500 cc. of an anticoagulating diluent. The initial donors will have to be volunteers, but thereafter blood should be replaced as it is drawn. Diluted stored plasma will answer almost all needs. However, for increased intracranial pressure undiluted plasma is best. The cost, discounting labor, is about one-tenth that of commercial human plasma. The small hospital or clinic with no added personnel can easily prepare its own plasma for its needs.

Union Médicale du Canada, Montreal

71:1-110 (Jan.) 1942. **Partial Index**

*Present Treatment of War Wounds. G. Gordon-Taylor, London, England.—p. 11.
*Duodenal Achalasia: Clinical, Radiologic and Therapeutic Considerations. A. Cantero and A. Jutras, Montreal.—p. 16.
Several Aspects of Nephritis. R. Dandurand, Montreal.—p. 29.
Syndrome of Gradenigo or of the Petrosal Apex in Course of Suppurating Otitis. R. Amyot and J. Brahy, Montreal.—p. 34.
Calculous Cholecystitis in Child. C. Bisson, Montreal.—p. 45.
Spinal Anesthesia. R.-E. Seneca, New Bedford, Mass.—p. 48.

Present Treatment of War Wounds.—Gordon-Taylor states that wounds caused by bomb fragments are produced not only by metal but by glass splinters, fragments of wood, pieces of stone and débris. The rarity with which gas gangrene has been encountered in this war is in striking contrast to its frequency during World War I. The débridement practiced now is not more thorough than it was then. The use of the sulfonamide derivatives and of plaster casts to insure complete rest is probably the important factor. Antigangrene serum is administered not in a routine manner but only to persons with severe wounds especially susceptible to gas infection, such as wounds of the buttocks, the perineum and the calf muscles. Secondary hemorrhages constitute a serious problem, but in the author's experience they were rare. Tetanus was extremely rare because of immunization. Burns have been a frequent lesion during this war. Treatment by coagulation is indicated for extensive burns of the body; it is definitely contraindicated for burns of the hands and the face. For the latter saline dressings, sulfonamide derivatives and tulle gras are most frequently used. Lesions caused by mines, which involve chiefly the lower extremities, are frequent in the navy. The calcaneum

is particularly vulnerable. All bones of the lower leg may be fractured, and dislocation of the knee is not rare. Compression fracture of the first lumbar vertebra is encountered after mine explosions; every patient who complains of a pain in the back should be subjected to roentgenoscopy. Abdominal injury is particularly likely to be produced by small fragments of bombs. The value of abundant transfusions of blood or its derivatives in grave shock has been demonstrated. Blast injury of the lung is characterized by expectoration and by distention of the lower part of the thorax. The typical abdominal lesions of blast are retroperitoneal hematoma, perirenal extravasation and intermesenteric encircling of the intestinal wall. MacWilliams called attention to "blast by immersion." It is observed in shipwrecked persons exposed to detonations in the surrounding water and may result in rupture of the small intestine, of the cecum or of the ascending colon. Some patients with lesions of this type have been known to survive after operation.

Duodenal Achalasia.—Cantero and Jutras classify duodenal dyskinesias as mechanical and functional. The term achalasia was first applied by Hurst to the deficient relaxation of the sphincters. Two groups of symptoms may be present: those caused by stasis and those resulting from autointoxication. Stasis and dilatation manifest themselves in a sense of fulness and of epigastric distention during or shortly after a meal. The distention may develop into a severe pain and may be followed by vomiting, prostration and headache. Among the consequences of duodenal autointoxication, attacks of migraine take the first place. They may cause the patient to abstain from food, with resulting emaciation and weakness. The malnutrition reacts on the mental state. Although anxiety, emotional stress, prolonged chagrin and intellectual overwork often elicit the syndrome, the psychic effects of malnutrition likewise influence the character. The incidence of duodenal stasis is comparatively high. Although the authors detected duodenal achalasia in children 9 and 11 years of age the disorder is rare in children. It is frequent in the aged and the middle aged and is somewhat more frequent in women than in men. It progresses in bouts that last from several weeks to several months, in the course of which the subject becomes pale or yellowish and loses weight, strength and control of the nerves. The resulting reduction in resistance involves the threat of intercurrent infections. Surgical treatment rarely produces satisfactory results. Medical treatment, if carried out faithfully, is, as a rule, effective. It includes provision for a diet rich in proteins, carbohydrates, mineral salts and vitamins, mental and physical relaxation such as may be obtained by life in the open air, drainage and lavage of the duodenum repeated two or three times a week for several months, and medication to establish vagosympathetic equilibrium, especially with acetylcholine and prostigmine.

War Medicine, Chicago

2:1-192 (Jan.) 1942

*Diagnosis, Treatment and Prevention of Meningococcic Meningitis, with Résumé of Practical Aspects of Treatment of Other Acute Bacterial Meningitides. J. H. Dingle and M. Finland, Boston.—p. 1.

*Local Chemotherapy of Experimental Gas Gangrene. G. B. Reed and J. H. Orr, Kingston, Ont., Canada.—p. 39.

*Treatment of Experimental Gas Gangrene with Zinc Peroxide. G. B. Reed and J. H. Orr, Kingston, Ont., Canada.—p. 79.

Treatment of Experimental Gas Gangrene with Plaster Immobilization and Chemotherapy. G. B. Reed and J. H. Orr, Kingston, Ont., Canada.—p. 83.

*Antigenic Value of Clostridium Perfringens (Clostridium Welchi) Toxoid in Prevention of Gas Gangrene. Sarah E. Stewart, Bethesda, Md.—p. 87.

Medical Aspects of Selective Service System: II. Follow-Up Study. M. S. Saslaw and C. S. Junkermann, Camp Shelby, Miss.—p. 99.

Development of Equipment for Administration of Dried Plasma in Armed Forces. M. Strumia, Bryn Mawr, Pa.; L. R. Newhouser, D. B. Kendrick Jr., Washington, D. C., and J. J. McGraw, Bryn Mawr, Pa.—p. 102.

Analysis of 373 Cases of Acute Craniocerebral Injury. C. Pilcher and R. Angelucci, Nashville, Tenn.—p. 114.

Meningococcic Meningitis.—Dingle and Finland review the present status of the prevention, diagnosis and treatment of acute bacterial meningitis. Epidemics which occurred during the last world war are prevalent in some countries today and may in the near future become widespread in the armed forces or the civilian population of this country. Every patient with meningitis represents an individual problem and should be in the hands of one physician during the entire course of his illness. The diagnostic aids and procedures are the clinical history, physical examination, blood culture, hematologic examination, cultures of miscellaneous material, the determination of the nonprotein nitrogen of the blood, urinalysis and lumbar puncture performed as soon as possible under strict surgical asepsis, determination of the initial pressure, determination of the dynamics of the cerebrospinal fluid, chemical analysis of the cerebrospinal fluid and the blood, cytologic study and bacteriologic isolation. The treatment of meningococcic meningitis consists in the institution of chemotherapy immediately after the presence of organisms is known, the correction of dehydration by administering isotonic solution of sodium chloride with or without dextrose, specific serum therapy to supplement chemotherapy, the treatment of focal infections, the utilization of laboratory aids (determination of the level in the blood and cerebrospinal fluid of the drug administered, the hemoglobin concentration, blood counts and cultures) for the control, change or withdrawal of therapy and symptomatic and supportive treatment. The convalescent period should be about one month after complete recovery and longer if the illness was severe and protracted. In the management of a patient with a relapse or a recurrence the differential diagnosis should include a concomitant infection, infection at another focus caused by the original organism, drug fever and serum sickness. A lumbar puncture, with complete examination of the cerebrospinal fluid as after the initial puncture, should be performed, the total and differential erythrocyte counts should be repeated and treatment as for an initial infection should be resumed if indicated.

Experimental Gas Gangrene.—Reed and Orr controlled experimental gas gangrene in guinea pigs after inoculating them with ten times the minimal lethal dose of Clostridium welchi, Clostridium septicum, Clostridium novyi or Clostridium sordelli or with a mixture of one or more of these and Clostridium sporogenes or Clostridium histolyticum by local therapy with one of the sulfonamide derivatives. Infection caused by Cl. welchi responded most readily to chemotherapy. Infections caused by Cl. septicum and Cl. novyi were somewhat more resistant, and those caused by Cl. sordelli were definitely resistant to chemotherapy. In the order of increasing effectiveness the drugs tested were sulfanilamide, sulfacetamine, sulfaguanidine, sulfapyridine, sulfamethylthiazole, sulfadiazine and sulfathiazole. The superiority of local to oral treatment is more definite with the less efficient than with the more efficient drugs.

Zinc Peroxide for Experimental Gas Gangrene.—Reed and Orr observed that the introduction of zinc peroxide into wounds of guinea pigs into which ten fatal doses of Clostridium welchi, Clostridium septicum, Clostridium novyi or Clostridium sordelli previously had been injected resulted in a high percentage of recoveries and a prolongation of the survival time among guinea pigs with a fatal infection. Zinc peroxide was slightly less effective than sulfathiazole in the treatment of wounds in which gas gangrene infection had become established before therapy was instituted.

Prevention of Gas Gangrene.—Stewart outlines a method for concentrating Clostridium perfringens toxoid which she has successfully used in the prophylaxis of gas gangrene. Her evidence is based on the results obtained with 54 guinea pigs given injections of the toxoid. The serum of only 7 of them showed 0.25 unit of antitoxin or more per cubic centimeter. One month after the last injection of toxoid each guinea pig was inoculated intraperitoneally with one to four minimal lethal doses of a Cl. perfringens culture. None of the animals survived except those which showed antitoxin in the serum by mouse titration. When ten to thirty minimal lethal doses of culture were injected intramuscularly into an immunized guinea pig only a localized infection frequently resulted. The low antigenicity of the toxoid may be due to a loss of some antigenic factor during filtration. Since the lethal toxin can be concentrated many times by this process, it may be that other factors are necessary to produce a good antigen and that these are lost in filtration.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

16:211-274 (Dec.) 1941

Infantile Diarrhea and Vomiting. R. M. Campbell and A. A. Cunningham.—p. 211.
Shock in Newborn Infant. R. A. Miller.—p. 230.
Secretion of Urine by Premature Infants. W. F. Young, J. L. Hallum and R. A. McCance.—p. 243.
*Familial Renal Dwarfism. S. Graham and J. H. Hutchinson.—p. 253.

Familial Renal Dwarfism.—Graham and Hutchinson report 3 and probably 4 instances of renal dwarfism that occurred among 8 live-born children. Both parents are healthy. A history of renal disease on either side of the family was not present. The 4 instances occurred in successive pregnancies in the middle of the mother's childbearing life. No information is available with regard to the underlying pathologic changes, as permission for postmortem was not granted for the 2 patients seen by the authors, the third patient died some time before and the fourth patient is apparently well but still small. As usual, hypertension was not present nor were casts found in the urine. Because of these features it has been suggested that renal dwarfism is more often due to congenital hypoplasia of the kidneys than to chronic nephritis. Coplin has suggested that the renal hypoplasia might be due to defective arteriogenesis with a consequent defective development and a scarcity of secretory units. Such an inherent fault in the germ plasm might explain the familial incidence.

British Journal of Experimental Pathology, London

22:293-316 (Dec.) 1941

Inhibition of Bacterial Growth by Indoleacrylic Acid and Its Relation to Tryptophan: Illustration of Inhibitory Action of Substances Chemically Related to Essential Metabolite. P. Fildes.—p. 293.
Sarcoma Produced by Subcutaneous Injections of Overheated Cottonseed Oil into Mice. S. Beck.—p. 299.
*Occurrence of Influenza B in Southern England. Dora Lush, C. H. Stuart-Harris and C. H. Andrewes.—p. 302.
Modification of McIntosh and Fildes's Anaerobic Tin. R. E. B. Hudson.—p. 305.
Experiments with Renin. R. W. Scarff and N. H. Martin.—p. 309.

Influenza B in Southern England.—Lush and her associates tested against influenza B virus all the serums available from the 1939 epidemic of influenza in England, including serums known to have shown a rise in titer against influenza A virus. The rise in titer in the 8 serums positive to the B strain of the virus was respectively 600, 150, 150, 100, 50, 40, 20 and 10 fold. Influenza caused by the B virus was widespread not only during the early part of 1939 but throughout the whole epidemic period. It occurred in two of the institutions investigated at the same time as an outbreak of influenza A, and clinically it was not distinguishable from virus A infection. No serum showed an antibody rise against both the A and the B virus. The serum of about half of the patients showed no rise in antibody against either virus, and consequently the authors assume that in these patients the disease was due to an as yet unknown agent.

British Medical Journal, London

2:865-896 (Dec. 20) 1941

Duodenal Intubation: Significance of Cellular Contents of Bile in Diagnosis of Diseases of Biliary Tract. A. Fidler, J. Innes and L. S. P. Davidson.—p. 865.
Observations on Some Normal and Injurious Effects of Cold on Skin and Underlying Tissues: III. Frostbite. T. Lewis.—p. 869.
*Experimental Study of Wounding Mechanism of High Velocity Missiles. A. N. Black, B. D. Burns and S. Zuckerman.—p. 872.
Blood Pressure Raising Reflexes in Hysterical Anesthesia. J. V. Cable and F. H. Smirk.—p. 874.
Temporary Vascular Occlusion Ending Fatally in Uremia. A. M. Glen.—p. 875.

Wounding Mechanism of High Velocity Missiles.—According to the investigation carried out by Black and his colleagues on rabbits and on blocks of 20 and 5 per cent gelatin into which a cordite charge (a 3/32 inch steel ball weighing 53 mg.) was fired at velocities varying from 500 to 5,000 feet per second, it appears that the disproportionate degree of tissue destruction caused by small high velocity bomb splinters is due to the fact that particles lying in their path are thrown radially with sufficient violence to leave a central cavity around which tissues at some distance from the track are momentarily stretched. While blood vessels are usually elastic enough to experience this strain without anatomic and functional injury and nerves without obvious anatomic injury, bones are often broken at some distance from the track.

Journal of Hygiene, London

41:345-462 (Dec.) 1941

Ecology of Bedbug, Cimex Lectularius Linnaeus, in Britain: Report on Research, 1933-1940. C. G. Johnson.—p. 345.

Journal of Laryngology and Otology, London

56:377-414 (Nov.) 1941

Otogenous Meningitis: Intrathecal Administration of Sulfonamide. C. A. Hutchinson.—p. 377.
Traumatic Parapharyngeal Cellulitis: Case. D. B. Kelly.—p. 387.
Cerebrospinal Puncture and Air Replacement for Otosclerosis. E. R. G. Passe.—p. 389.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

48:685-768 (Dec.) 1941

Persistent Functional Corpus Luteum. J. Black, O. S. Heyns and J. Gillman.—p. 685.
Diabetes Mellitus and Pregnancy. H. H. F. Barns.—p. 707.
Renal Function Tests in Normal and Toxemic Pregnancy. Vera I. Krieger and Nanette Norris.—p. 726.
Differential Diagnosis of Vaginitis in Menopausal Women. H. C. McLaren.—p. 742.
Meigs's Syndrome (Ovarian Fibroma with Ascites and Hydrothorax): Report of Case. C. Borg.—p. 750.
Unusual Case of Carcinoma of Cervix. S. Way and J. Simpson.—p. 753.

Lancet, London

2:751-782 (Dec. 20) 1941

*Pfeiffer's Bacillus (Influenzal) Meningitis. N. Mutch.—p. 751.
Pfeiffer's Bacillus Meningitis: Recovery with Chemotherapy. N. M. Jacoby.—p. 753.
Photoelectric Method of Estimating Hemoglobin. D. K. Hill and A. C. Pincock.—p. 754.
*Treatment of Bedclothes with Dust Laying Oils: Use of Oil in Water Emulsions. M. van den Ende and J. C. Thomas.—p. 755.
Hyperchromic Anemia in Infant: Response to Liver Extract. L. Cole.—p. 759.

Pfeiffer's Bacillus (Influenzal) Meningitis.—Mutch states that influenzal meningitis due to Pfeiffer's bacillus, which is comparatively uncommon in England, has been observed in 3 patients and probably in 2 others since August 1941. England's comparative immunity, the author suggests, may be due to a higher individual resistance to Pfeiffer's bacillus acquired in the land of the common cold. In America the bacilli are described as being numerous. In the author's patients the bacilli were so few that they might easily have escaped notice. The disease may possibly be overlooked sometimes when laboratory facilities are inadequate. The organism often is not seen or fails to grow from cerebrospinal fluid from patients with suppurative meningitis. There is a tendency to ascribe this failure to death of the bacteria during transport of the specimen or to administration of sulfonamide derivatives before the fluid is collected, but it is conceivable that the group of cases in which culture is unsatisfactory may include a proportion of cases of influenza.

Dust Laying Oils for Bedclothes.—The possible importance in preventing the spread of infection and the relative simplicity of treating bedclothes with liquid petrolatum have caused van den Ende and Thomas to find substitutes for liquid petrolatum, which in the quantity necessary is expensive, and to simplify the method of application. The shortage of paraffinum liquidum British Pharmacopeia has led to the introduction of paraffinum liquidum leve British Pharmacopeia. This is a highly refined, inert petrolatum oil with a lower density and viscosity than the original oil and represents the most refined type of what are known technically as white oils. These white oils are available in considerable quantities, and the authors have used one which differs from the new British Pharmacopeia product only in that it has a higher acid value. Unlike refined yellow spindle oils, the white oils are not carcinogenic. All

the white oils tested have proved to be efficient dust layers. The fact that these oils, with the aid of suitable wetting and emulsifying agents, result in centrifuge stable emulsions with water overcomes the original difficulty of applying an organic solvent and makes mass treatment of bedclothes a practical possibility in hospital laundries. Furthermore, the emulsifiers used are bactericidal under natural conditions, especially against wet organisms, as those in moist droplets. Bedclothes are thoroughly soaked in a 20 per cent water solution of the oil, spun in a hydroextractor and then dried in the hot air drying chamber. Bedclothes treated with the soluble oils not only retain most of the organisms within the actual fabric but also kill the organisms in droplets before they dry. The use of the soluble oils in hospital trials resulted in a 99 per cent reduction in the number of organisms liberated during bed making.

Medical Journal of Australia, Sydney

2:635-660 (Dec. 6) 1941

Recent Developments of Knowledge of Liver Function and Behavior. R. D. Wright.—p. 635.
Tuberculin Patch Test. J. H. Colebatch.—p. 640.
Patch Test: Simple Tuberculin Test for General Medical Practice. D. Anderson.—p. 645.
Diagnosis of Intraventricular Hemorrhage. R. S. Steel.—p. 647.

Practitioner, London

148:1-64 (Jan.) 1942

Pneumonitis or Virus Pneumonia. W. T. Longcope.—p. 1.
Modern Views on Pneumonia and Its Treatment. M. Davidson.—p. 9.
Chronic Bronchitis in the Elderly. F. A. Roper.—p. 18.
Rickets in War Time: Its Prevention and Treatment. Helen M. M. Mackay.—p. 25.
Measles and Whooping Cough: Prevention and Treatment. E. H. R. Harries.—p. 32.
Prevention and Treatment of Frostbite. R. Greene.—p. 38.
Vitamin C: Its Sources, Properties and Requirements. Cecile Asher. —p. 44.
Minor Surgery: VII. Bursas and Ganglions. H. J. Burrows.—p. 50.

Schweizerische medizinische Wochenschrift, Basel

71:1409-1436 (Nov. 8) 1941. **Partial Index**

Alzheimer's Disease and Pick's Disease. A. Favre.—p. 1409.
*Treatment of Cavernous Pulmonary Tuberculosis with Suction Drainage of Cavities. A. Schuberth.—p. 1412.
Relation Between Sugar Absorption and Phosphate Metabolism: Secretion of Phosphorus into Intestinal Lumen During Absorption of Monosaccharides. L. Lauri and L. Dalla Torre.—p. 1416.
Studies on Efficacy of Various Methods of Room Disinfection by Means of Formaldehyde-Water Vapors and Paragerm (Mixture of Phenyl-Oxy-Benzoate and Para-Iso-Propyl-Metacresol-Benzoate) Vapors. B. Fust.—p. 1425.
Chronic Alcoholism and Suicide: Bandel's Theory of Influence of Alcoholism on Incidence of Suicide. Z. Shimshony.—p. 1429.

Suction Drainage of Pulmonary Cavities.—Schuberth suggests that immunobiologic states and mechanical factors play a part in the varying healing tendencies of tuberculous cavities. The cavernous wall and its surroundings, the air pressure inside the cavity and the behavior of the draining bronchus are important mechanical factors. The production of a continued negative pressure in the tuberculous cavity, such as is produced by Monaldi's suction drainage, promotes its shrinkage. By removing the toxic contents, suction drainage also cleanses the cavernous walls. As a result coughing decreases, bacilli disappear from the sputum and the cavity, the toxicity diminishes and the general condition improves. Among the indications for Monaldi's suction drainage the author stresses that there must not exist a free pleural space corresponding to the region of the cavity. The presence of even a small pleural space results in the formation of empyema. It is therefore essential to make careful attempts at pneumothorax, and only after adhesion is absolutely certain can suction treatment be started. If the pleural space is only partially free, an attempt can be made to obliterate it by the introduction of talcum. The author found this procedure helpful in a number of cases as a preparation for suction drainage. A fairly good immunobiologic equilibrium is also desirable. Fever bouts should have subsided. It may be desirable first to subject the patient to sanatorium treatment. Experience has demonstrated that the danger of complications is comparatively slight. The author employed the treatment in 56 cases. The time elapsed is too short to permit evaluation of the permanent results. Suction drainage is a valuable addition to the treatment of tuberculous cavities. When it alone does not produce a permanent cure, it puts the patient into a better condition for a subsequent thoracoplasty. Suction drainage makes thoracoplasty possible in some cases in which it would otherwise have been impossible.

Anais Brasileiros de Ginecologia, Rio de Janeiro

12:441-524 (Dec.) 1941. **Partial Index**

*Value of Artificial Estrogens in Gynecologic Disease. N. Arenas. —p. 441.

Synthetic Estrogens in Gynecologic Disease.—Diethylstillbestrol, according to Arenas, produces estrus in spayed animals and proliferation of the endometrium, enlargement of the breasts and similar phenomena in menopausal or castrated women. The drug is twice as strong as natural estrogens. It can be administered by mouth and is less expensive than the natural estrogens. It should be taken in milk to prevent gastric symptoms. The author obtained satisfactory results in a large number of patients with menopausal symptoms, hypogonadism, vulvar pruritus and cessation of milk secretion and in young girls and old women with vaginitis. The daily dose varied from 1 to 2 mg. of the substance up to a total of 80 mg. It is advisable to stop the treatment when symptoms are almost under control and either to repeat after a moderate period of rest or to administer the substance in smaller doses and at longer intervals.

Archivos de Pediatría del Uruguay, Montevideo

12:767-830 (Dec.) 1941

Tuberculosis in Children: Significance of Heredity and Contagion. P. de Elizalde.—p. 767.
Decapitation of Superior Epiphysis of Humerus Caused by Obstetric Trauma. R. J. Caritat and E. Peluffo.—p. 785.
*Seven Years' Experience with Diabetes Mellitus in Children. Maria Luisa Saldún de Rodriguez.—p. 796.
Nicolas-Favre's Disease in Child of Eighteen Months. V. Pereira and J. V. Gil.—p. 812.

Diabetes in Children.—Saldún de Rodríguez reports observations lasting seven years on 57 children with diabetes mellitus. The course of diabetes in the child is determined by two groups of factors: (1) physiologic factors involving growth, development, glycemic instability and the glands of internal secretion and (2) treatment, which is concerned with diet, the use of insulin, adjuvant medication, hygienic care and social protection. The dietetic treatment is fundamental. The most effective diet is one which is rich in carbohydrates and in which the ratio of antiketogenic to ketogenic substances is kept at 2 or more. The quantity of proteins and the caloric value should correspond to the requisites for healthy children. The menu should be individualized and as far as possible adjusted to the taste of the child and to the economic status of the family. Insulin therapy is indispensable for the child; without it the course of the disease will always be unfavorable. At first insulin should be given in a quantity sufficient to metabolize all the diet and to maintain a humoral equilibrium. Later, in cases of evident improvement, the amount can be gradually diminished and some of the injections omitted, but the humoral equilibrium must always be maintained. The author employed ordinary insulin because it is easier to manage and does not produce nocturnal hypoglycemia. Liver therapy produced favorable results in hepatomegaly and in nocturnal hyperglycemia; ovarian, testicular and hypophysial therapy are useful in the prepuberal period. Therapy with vitamins B_1 and D and calcium was employed. Social protection is an important factor; it comprises instruction of the family, prevention of the development of an inferiority complex and collaboration with the teacher and the visiting nurse. If correct treatment is given, clinical normalization of the secretory equilibrium, of the metabolism and of physical and intellectual growth can usually be obtained in the diabetic child. Disturbances in the sexual sphere, such as delayed puberty or menstrual disturbances, are comparatively frequent but can be ameliorated or corrected by endocrine therapy. It is much more difficult to establish a humoral equilibrium in a child in whom it has been neglected for a long time than in a child who has been correctly treated from the beginning.

Revista Cubana de Cardiología, Havana

2:299-388 (Sept.-Dec.) 1940. **Partial Index**

*Therapy of Chronic Arterial Hypertension by Large Doses of Vitamin A. J. Govea Peña and M. Villaverde.—p. 332.

Vitamin A in Chronic Arterial Hypertension.—Govea Peña and Villaverde administered vitamin A to 65 patients with chronic hypertension. Administration of 180,000 units of vitamin A for several days resulted in lowering of the blood pressure 30 to 40 mm. of mercury. After this 90,000 units was given daily for several months. Lowering of the blood pressure frequently took place during the first forty-eight hours. In all cases, symptoms of hypertension diminished early in the course of the treatment. Headache generally disappeared within the first forty-eight hours. The symptomatic and functional improvement continued long after the treatment had been discontinued. None of the 65 patients were treated by any special rest different from that which they had in the course of previous treatments, which had failed. The only 4 whose treatment was a failure had malignant arterial hypertension. Vitamin A given in large doses has a considerable hypotensive effect. The vitamin is best administered by mouth; intramuscular injections give rise to inflammation in about 90 per cent of cases.

Rev. d. Inst. Salub. y Enferm. Trop., México, D. F.

2:129-256 (Sept.) 1941. **Partial Index**

*Artificial Active Immunization Against Typhoid and Paratyphoid A and B with Only One Dose of Typhoid and A and B Paratyphoid Vaccines Precipitated with Alum. A. P. León, F. Escarza and E. Rabasa. —p. 161.

Active Immunization Against Typhoid and Paratyphoid A and B.—León and his colleagues found that alum has a bactericidal effect on salmonellas of the typhoid and paratyphoid groups and precipitates them; a given dose of precipitated typhoid or paratyphoid bacteria immunizes animals with greater immunity than that which is produced by three times the same dose of nonprecipitated bacteria. They prepared a vaccine with typhoid and A and B paratyphoid bacteria which was precipitated with alum. The vaccine was administered to several hundred persons in one dose of 1 cc. containing 1,000 million typhoid bacteria and 500 million each of paratyphoid A and B bacteria. The O, H and Vi agglutinins and protecting antibodies were determined in the blood serum before and after vaccination by the mouse protection test. A single dose of the alum precipitated vaccines gave immunity as high or higher than that produced by three doses of the standard vaccines. The local and general reactions caused by the alum precipitated vaccine are almost equal to those caused by one of the three doses of the standard vaccine and are not considered a contraindication to its use in individual or mass immunization.

Archiv für klinische Chirurgie, Berlin

199:559-666 (Dec. 23) 1940

*Solitary Xanthoma of Bone. H. Puhl.—p. 559.
Pathologic Bone Fractures as Sequels of Sport Injury. P. von Puky. —p. 587.
*Struma Suprarenalis Cystica Hemorrhagica. C. H. Schröder.—p. 595.
Attempted Conservative Treatment of Spontaneous Gangrene. D. Pankenko.—p. 607.
Perthes' Disease and Coxa Vara. S. Nagura.—p. 613.
Neurinoma of Canda Equina. K. Kratochvil.—p. 619.
*Influence of Surgical Trauma on Venous Blood Pressure. P. Ollinger. —p. 628.

Solitary Xanthoma of Bone.—According to Puhl, localized xanthoma of bone occurs in solid or cystic form, and in its clinical behavior and microscopic appearance it greatly resembles giant cell tumor or genuine bone cyst, which are dysontogenic mesenchymal blastomas. The difference consists merely in the yellow discoloration of the tissue or the cholesterol content of the cyst produced by a lipoid modification of the mesenchymal tumor cell. The appearance of lipophagic granuloma, the inflammatory component of which can be intensified by necrosis, develops only after disintegration of the xanthoma cells and precipitation of crystalline cholesterol, as the result of foreign body irritation of the still functioning mesenchymal cells. Xanthoma of bone thus is a giant cell tumor or a bone cyst the mesenchymal cells of which have undergone secondary lipoid changes, such as occur also in other tumors. For this reason bone xanthoma is best identified by the term "solid or cystic xanthomatous mesenchymal blastoma." There is no primary disturbance in the lipid metabolism, although slight hypercholesteremia may have been demonstrated in a few cases; the tumor formation is independent of such a disturbance. The lipid storage of the mesenchymal tumor cell develops neither from an increased supply nor from absorption from decaying foci. Stasis of lymph likewise cannot be demonstrated. Xanthoma is apparently the result of an actively increased cellular function comparable to the lipid and particularly the cholesterol metabolism. The giant cell tumors and ganglions of the tendon sheaths are mesenchymal blastomas. Their genesis corresponds to the corresponding neoplasms in bone. These tumors likewise frequently show a lipoid modification of the mesenchymal cells. Thus the embryonal mesenchymal cell is the vehicle of the lipoid modification in all these tumors. Localized xanthoma of bone is a benign tumor as far as its histologic character corresponds to that of giant cell tumor or bone cyst. However, a malignant tumor may be masked by similar roentgenologic and macroscopic appearances. A differentiation from the systematic and generalized lipoidoses seems necessary, but the occurrence of polyostotic forms must be considered.

Struma Suprarenalis Cystica Hemorrhagica.—According to Schröder, Henschen applied the term struma suprarenalis cystica hemorrhagica in 1906 to blood cysts of the adrenal glands. The literature contains records of only 20 cases of this condition. The cyst originates from an adrenal gland or an adrenal tumor and develops gradually, as a rule in the course of decades and as the result of successive hemorrhages into the cystic cavity. Generally the cyst causes difficulties and is discovered only after it has become so large that it interferes with neighboring organs (kidney, spleen, liver, large intestine). Frequently an internal epithelial lining is absent. Adrenal tissue can be demonstrated in the cystic wall or adhering to it; this corroborates the diagnosis. The author reports the successful extirpation of an adrenal blood cyst of 3.75 liters capacity from a woman aged 61. The flank incision of Küttner with combined retroperitoneal and intraperitoneal maneuvers proved advantageous in the removal of the cyst. Marsupialization of the cyst should be resorted to only in an emergency.

Influence of Surgical Trauma on Venous Blood Pressure.—Ollinger investigated the effect of the anesthetic and of surgical trauma on the venous pressure during the postoperative period. The pressure was determined by the Moritz and von Tabora method. In all, two hundred and seventy-four determinations were made on 78 patients, the pressure being determined once before the operation and from two to six times afterward. In two thirds of the patients the venous pressure fell immediately after the operation, but in the other third it rose. The fall was greatest in patients undergoing gastric resection and the rise in those undergoing strumectomy. The extent and persistence of fluctuations in venous pressure generally show some relationship to the extent and nature of the intervention and to the type of anesthesia. The postoperative venous pressure reaction is greater when general anesthesia is used. Trauma caused by general anesthesia is at first considerable but is less persistent than that caused by surgical intervention. Slight upward or downward fluctuations are of no particular prognostic significance. Considerable fluctuations indicate substantial circulatory impairment, particularly if the arterial pressure decreases at the same time. If several days after the operation the venous pressure shows no tendency to return to the initial figure, the circulation is threatened even in the absence of considerable fluctuations in the arterial pressure. The behavior of the venous pressure early indicates possible circulatory and respiratory complications and thus gives hints as to the treatment to be employed. Impairment of the respiratory function may likewise play a part in the development of postoperative fluctuations in the venous pressure. Fluctuations in venous pressure suggest that the postoperative condition is nearly always a collapse for which the term "shock" is not suitable.

Book Notices

The Furtherance of Medical Research. By Alan Gregg, M.D., Director for the Medical Sciences at the Rockefeller Foundation, New York. Cloth. Price, $2. Pp. 129. New Haven: Yale University Press; London: Oxford University Press, 1941.

This is the eighteenth in the series of the Terry Lectures. It records the development and importance of modern medical research. Gregg emphasizes the importance of selecting the proper persons for research. The investigator should be in a university environment where he is at least tolerated if not appreciated and where he has easy and informal access to the minds of colleagues, where he may have the opportunity to develop disciples and to sharpen his mind. The medical scientist needs association and assistance from a wide range of sciences. "Medical research bears obviously close relation to research of many kinds. As the physiology of today may become the clinical knowledge of tomorrow, so the discoveries of physics and chemistry of today may become an intimate element in the physiology of tomorrow." This should convey to the student who plans to enter medicine the importance of the preclinical sciences, the significance of which seems to elude the grasp of many who are attempting to teach them.

The requirements of state boards of licensure are not synonymous with those of an adequate training for medical research. The author contrasts the practitioner of medicine and the investigator in the words of Sir Thomas Lewis: "Self confidence is by general consent one of the essentials to the practice of medicine, for it breeds confidence, faith and hope. Diffidence, by equally general consent, is an essential quality in investigation, for it breeds inquiry. . . . A natural companion of confidence is an easy and uncritical acceptance of statements of fact and of hypothesis; it is often coupled with a very wide and diverse acquaintanceship with other men's work and thoughts. The companion of diffidence is skepticism; it tends to be coupled with knowledge less extensive but derived more from personal experience and analysis, knowledge more precise, and often more fundamental. . . . The support of research men of no ability is an extremely wasteful procedure. It is somewhat worse than burning of money because you can easily dispose of the ashes left by a check, whereas the residue of worthless research is publications which choke the libraries, the bibliographies and the minds of students everywhere."

Gregg has described the research worker thoroughly. Usually possessing little means, self sacrificing and shy, these people devote themselves to their ideas, working long into nights and holidays, with little thought of pecuniary return. They are not to be diverted from their course, and they are to be thought of kindly and treated with consideration despite the fact that they do not conform to the usual social pattern. They are occupied with the world's work and they are stimulated by nothing so much as by devotion to an idea and to a job. The modest salary of the researcher is deprecated, as it encourages the talented man to deviate toward the more lucrative alternative, the practice of medicine. It also forces the best who remain in research to such economic struggles as to produce "a virtually sterile academic society, a professoriate overconcerned with economic security and therefore secretly rebellious or timidly resigned, or the academic career open only to those who have inherited money or married it. Men with energy and common sense but no fortune of their own will refrain from entering or advising entrance into so timid and defenseless a company." The part time man, bound to one city by a local practice which supplements his income, encourages the use of availability rather than ability as the criterion for clinical appointment. Gregg believes that this practice is the most serious present danger to the future of clinical medicine in this country. The thought that the clinician may repress the development of research by undoing the groundwork laid by the preclinical teachers is a provocative one.

From his wide experience Gregg has arrived at a fascinating method for computing academic health. If one divides the professors' salary by the figure that it costs a student per year to live and to attend medical school, a quotient is obtained which if below 3.6 is associated with languishing academic recruitment and decay of the university. When it is above 6.5 the life of the professors' post is comfortable and well competed for.

The main resources for the support of medical research besides the self-sacrificing researcher and his family are personal friends of research men, public subscription (for example, the President's birthday ball), industry, patenting the results of research, the government, the universities and the foundations. The remarks on support for medical research from government are timely, for it must be obvious to any one with half an eye that the future of medical research stands or falls by the nature of this support. The Medical Research Council in Great Britain is presented as a model because of the quality of its work and its unincumbrance by political or parsimonious factors. This council of eleven members is composed of eight men chosen for their scientific and medical qualifications; one other member represents the House of Lords and another the House of Commons. At present the remaining member, the treasurer, is a distinguished banker. Direct political influence is not likely to affect the decisions of the body. This council consists mainly of a group of experts in medical research with full authority to use and control the public money placed at its disposal, independently of all other bodies. This body, as well as our own National Research Council, has pioneered in a field beset by many thorny problems.

The book points out that about one hundred foundations have been organized within the last ten years, and therefore money possibly has been diverted from universities into these tax free holdings. One feels that this development has catalyzed some modern political thought into punitive plans against these financial giants. Gregg has some advice to spare for these relative newcomers in the field. It has been found that capital grants for endowment or long term grants are healthier than short term grants. Foundation support for a germinal idea is advisable (for example, the Commonwealth Fund in the development of child guidance). The fellowship system has yielded unexpected returns, particularly when the fellows were able to range the world.

This short book is addressed to the entire medical profession, to the medical student, to the student who contemplates entering medicine and to many in the allied and basic sciences. It should be read by any who evince or profess an interest in medical research. It will most certainly result in a reevaluation of the position of the thinking man, for its pages shout the admonition "justify yourself."

Enfermedades de las arterias periféricas. Por el Dr. Alfredo V. di Cló, profesor adjunto de patología médica en la Facultad de ciencias médicas de Buenos Aires. Paper. Pp. 461, with 129 illustrations. Buenos Aires: Librería y Editorial "El Ateneo," 1941.

This work emanates from the First Division of Clinical Medicine of the University of Buenos Aires under the able direction of Prof. Mariano R. Castex, well known in this country, who wrote the prologue. Diseases of the peripheral arteries constitute an interesting chapter in human pathology, not only because much of value remains to be explored, but because new syndromes have appeared which have been proposed as independent entities but which have the one common characteristic of being based on diseases of the arteries or of their smallest ramifications. The author studied some 400 cases exhibiting some disturbances attributable to alterations of the peripheral arteries, the great majority presenting signs of claudication and gangrene in the lower extremities. The work includes a study of these 400 cases in detail, as well as descriptions of the technic and the results obtained with the author's new procedure of employing the injection of a carbon dioxide-oxygen mixture. He believes this constitutes a distinct advance in treatment. The subject is presented in orderly fashion, including generalities and technic of methods of exploration in Part I. Part II is devoted to arterial disturbances of functional origin, and part III to arterial diseases of organic origin. The fourth and final part deals with the treatment of peripheral vascular disease. The author recommends absolute abstinence from tobacco in any form, declaring that he has never seen improvement in any patients under his care unless this suppression of tobacco was demanded. He has observed, moreover, that simple suppression of tobacco was accompanied by the arrest of the disease, causing the initial symptoms to disappear without recourse to any other

therapy. His statistics include a series of cases in which the symptoms improved following the treatment instituted plus the suppression of tobacco but reappeared when the smoking habit was renewed. Abstinence from alcohol also is advised. The author goes into great detail regarding general hygienic, dietetic and medical management, and surgical treatment when it is required. His own procedure includes the use of the carbon dioxide-oxygen mixture. The latter is used in place of subcutaneous injections of carbonic acid. The technic of the injection is related in great detail. Summaries of 72 cases and a bibliography terminate the work.

Synopsis of the Preparation and After-Care of Surgical Patients. By Hugh C. Brenfritz, A.B., M.D., Instructor in Surgery, Louisiana State University School of Medicine, New Orleans, and Rawley M. Penick Jr., Ph.B., M.D., F.A.C.S., Professor of Clinical Surgery, Louisiana State University School of Medicine. With foreword by Urban Maes, M.D., D.Sc., F.A.C.S., Professor of Surgery and Director of the Department, Louisiana State University School of Medicine. Fabrikoid. Price, $5. Pp. 532, with 55 illustrations. St. Louis: C. V. Mosby Company, 1941.

While the evaluation of surgical risk depends, in the main, on experience and judgment, certain factors under the control of the surgeon can modify and control much of the risk. These factors have become more tangible in recent years and are approaching scientific reality. The ability of a patient to withstand major surgical attack can be definitely increased by proper measures undertaken prior to and succeeding operation. The most important advances in this field are those relating to a better understanding of fluid and electrolyte balances in the body and a better comprehension of shock. This book, intended primarily for surgical residents and practitioners, relates some of the basic problems of surgical care and practical methods of solving them. Besides chapters on fluid balance, transfusion, shock and general measures, specific practical details for handling situations arising during the surgical convalescence are dealt with. Generalities are usually dispensed with in favor of definite and practical detail. While agreement with various technics outlined will always be lacking, the methods suggested are generally acceptable and represent one good way of treating. References are plentiful and recent; illustrations are clear and profuse, indexing is thorough; all combine to make this book a welcome addition to the young surgeon's library.

Diseases of the Nose, Throat and Ear: A Handbook for Students and Practitioners. By I. Simson Hall, M.B., Ch.B., F.R.C.P.E., Surgeon to the Royal Infirmary, Edinburgh (Department for Diseases of Nose, Throat and Ear). Second edition. Cloth. Price, $4.50. Pp. 446, with 74 illustrations. Baltimore: William Wood & Company, 1941.

In this small volume, the second edition of a like handbook first published in 1937, certain chapters have been revised and rewritten to conform with modern advances in the science of otolaryngology. This effort is seen principally in references to the sulfonamide drugs and rhinologic therapeutics from the modern physiologic point of view. Considered as a "handbook for students and practitioners," as implied on the title page, it is a remarkably complete though brief summary of the specialty and as such should meet the purpose for which it was designed. Its extreme conciseness produces serious limitations to its use as an adequate guide to actual diagnosis and treatment, but its comprehensive brevity should make it an ideal refresher for undergraduates and practitioners.

Maude Abbott: A Memoir. By H. E. MacDermot, M.D., F.R.C.P. Cloth. Price, $2.50. Pp. 264, with 11 illustrations. New York & Toronto: Macmillan Company, 1941.

The author of this memoir, who is the assistant editor of the *Canadian Medical Association Journal*, is to be commended on the simple manner in which he has presented the highlights of Dr. Maude Abbott's career. Dr. Abbott, who was one of the first woman doctors of Canada, gained a reputation which was justly earned. Naturally the book will hold extra pleasure for Canadian readers, but it will also hold much interest for any who pass along its pages. Not only does it depict the possibilities that lie in store for those who have the courage, loyalty, tolerance and vitality possessed by Dr. Abbott but it offers intimate glimpses into the habits of some of her colleagues. Some of these colleagues are internationally known. That the book offers amusing moments is to say the least. For example, Dr. Abbott was closely associated with the Osler Memorial Volume, which appeared in 1926. During this association she was delayed many months in sending a manuscript for Dr. George Blumer's "Bedside Diagnosis." Considerable and spontaneously witty correspondence resulted between the two. Parts of these letters are reproduced in the book. The gem is Dr. Abbott's reference to Dr. Blumer's work as "Blumer's Bedtime Diagnosis," to which Blumer replied "The work doubtless has soporific qualities, but the correct title is "Bedside Diagnosis."

The Premature Infant: Its Medical and Nursing Care. By Julius H. Hess, M.D., Professor and Head of the Department of Pediatrics, University of Illinois College of Medicine, Chicago, and Evelyn C. Lundeen, R.N., Supervisor, Premature Infant Station, Sarah Morris Hospital, Chicago. Cloth. Price, $3.50. Pp. 389, with 74 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1941.

The Hortense Schoen Joseph Premature Station of Michael Reese Hospital has a record for saving the lives of premature infants somewhat better than that of most institutions concerned with this field. The record has been accomplished by the introduction of complete control of the environment, the maintenance of aseptic nursing care and the introduction of special technics for bathing, dressing, feeding and otherwise providing for the infant. In this book the physician who has had charge of this work and the nurse who has been responsible for the meticulous detail have cooperated. Indeed, the work itself is so impressive that it has now been related to the entire program for the care of the premature infant in Chicago. It represents a challenge to all others concerned with similar work.

The Postnatal Development of the Human Cerebral Cortex. Volume II: The Cortex of the One-Month Infant. By J. LeRoy Conel, Professor of Anatomy, Boston University School of Medicine, Boston. Cloth. Price, $8. Pp. 147, with 220 illustrations on 108 plates. Cambridge: Harvard University Press; London: Oxford University Press, 1941.

This monograph, the second of its kind by the author, describes in detail the cortex of the 1 month infant. It is beautifully illustrated and the printing is excellent. The author finds the brain of the 1 month infant to be much less gelatinous in appearance and firmer to the touch than the brain of the newborn. He states that the difference in consistency of tissues is clearly noticeable before and after fixation in formaldehyde. The contents of the book include sections on the lobus frontalis, lobus parietalis, lobus occipitalis, lobus temporalis, lobus insulae and rhinencephalon. This is a rare contribution and together with the first volume should be purchased by all neurologists, neurologic surgeons, pediatricians and neuroanatomists. It is a masterpiece.

Source Book of Medical History. Compiled with Notes by Logan Clendening, M.D., Professor of the History of Medicine, University of Kansas, Kansas City. Cloth. Price, $10. Pp. 685. New York & London: Paul B. Hoeber, Inc., 1942.

This volume includes historical notes by Dr. Clendening and actual reproductions of the original writings, which have achieved a place in the history of medicine in the form, however, of English translations. There is an extensive index, which will aid the physician in reference to the fields in which he is especially concerned. Previously works of a similar character by Camac and Major and the various volumes of selected readings have served as models for this volume, but the author has obviously been guided largely by his own interests. A special feature is the inclusion in this volume of quotations from literature not definitely medical as, for example, some of the writings of Molière, Macaulay and Le Sage.

Clara Barton: Daughter of Destiny. By Blanche Colton Williams. Cloth. Price, $3.50. Pp. 468, with 31 illustrations. Philadelphia, New York & London: J. B. Lippincott Company, 1941.

This book will delight the lover of biographies. It is well written and almost brings to life the person of Clara Barton. The history of the beginnings of the American Red Cross and the long fight before the United States acceded to the treaty of Geneva is of particular interest at this time. Today, the Red Cross is taken for granted. No one questions its ability to relieve the suffering caused by disaster. Its place on the battlefield is also an accepted fact. Clara Barton is portrayed as a wilful, stubborn person—in fact, just the type that was necessary to carry through such a difficult assignment. The book should serve as an inspiration to the young student who would like to save humanity, as well as make excellent reading.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

BURNS BY PHOSPHORUS

To the Editor:—Can you give me any information concerning burns by white phosphorus (P_4) and phosphorus trichloride (PCl_3)?

J. J. Roscoe, M.D., Cartaret, N. J.

ANSWER.—White phosphorus ignites spontaneously in the air and burns gradually from the surface. It may give rise to serious burns, since even when embedded in the flesh it will continue to burn as long as air can reach it. According to Vedder (The Medical Aspects of Chemical Warfare, Baltimore, Williams & Wilkins Company, 1925, p. 194) first aid treatment is directed toward stopping the phosphorus from burning and toward removal of any of the substance remaining in the wound. The part is immersed in water or is irrigated, and any remaining phosphorus is washed out or is wiped off with a wet gauze sponge held with forceps. The later treatment is the same as that for any other burn. Phosphorus trichloride is a liquid at ordinary temperatures, is noninflammable and gives off a toxic vapor. In the presence of moisture it is extremely hygroscopic and hydrolyzes rapidly, with the formation of hydrochloric acid. Its effect on the skin is not that of a true burn and is not specific for phosphorus but is that of the caustic or the corrosive action of a strong acid. The substance should be removed or neutralized by washing of the affected part with dilute alkali and the wound treated by measures appropriate to any other injury of like severity.

EXFOLIATION OF HANDS AND FEET

To the Editor:—A man aged 43, a commercial airline pilot, complains of peeling of the skin on the ventral surfaces of the hands and feet. This has occurred in attacks yearly since 1935. The disturbance has always been preceded by an acute respiratory infection, usually of a mild nature. The attack of peeling has never occurred at any other time than in the fall of the year, even though the patient may have colds during the other seasons. The hands are first affected, peeling of the epidermis starting at the finger tips and extending cephalad over the palms. After a week's interval the foot are affected in a similar manner. Several episodes of peeling may occur in these locations, after which the skin returns to normal and remains so until another cold develops in the ensuing fall. The patient takes no medication of any kind. There is no history of allergic phenomena affecting him or the members of his family. His general health is excellent. I can elicit no history of exposure of his skin to irritants or other substances during the fall months with the possible exception of the fact that he is accustomed to remove nightshade from his yard at this time of year. He does not wear gloves at any time. Physical examination discloses extensive peeling of the epidermis, most pronounced at the finger tips extending up under the nail beds and cephalad to the wrists. There is no vesiculation, weeping or other eczematous reaction. During the present attack the skin of his foot has not yet become involved. He has a mild trichophytosis between the toes. No other physical abnormalities are discoverable. The blood Wassermann reaction and blood count are uninformative with the possible exception of a 4 per cent eosinophilia. The platelets appear larger than normal but number 540,000. Cutaneous tests with oidiomycin and trichophytin are strongly positive for the former. Microscopic examination of scalings from the cutaneous lesions does not disclose the presence of fungi. Patch tests with the berry, leaf and flower of the nightshade are negative. Any suggestions as to further study or the possible cause of the difficulty would be appreciated.

M.D., California.

ANSWER.—The commonest cause of exfoliation of the palms and soles is the disease called keratolysis exfoliativa. This was first described in the American literature and given its name by G. W. Wende in 1919 (Keratolysis Exfoliativa, *J. Cutan. Dis.* **37**:174 [March] 1919); but soon after Wende's article appeared J. E. Lane (Some Observations on Keratolysis Exfoliativa, *ibid.* **37**:223 [April] 1919) pointed out that Carayon had described it in 1903 under the name desquamation estivale en aires des mains. Lane compares the two descriptions in an interesting manner and adds his own observations. MacKee and Lewis (Keratolysis Exfoliativa and the Mosaic Fungus, *Arch. Dermat & Syph.* **23**:445 [March] 1931) discussed its relation to fungous infections. They found foci of such infection in all their cases of keratolysis exfoliativa and they cited similar results of the study of such cases by others. A few have found fungi in the scales of the dry vesicles on the palms; but MacKee and Lewis did not. They found the mosaic fungus in these scales in potassium hydroxide preparations. They believed that keratolysis exfoliativa is a part of the picture of fungous infection in human beings. Others, however, still dispute the relation of the mosaic fungus or appearance to such infection. The toe infection in the case under discussion suggests such a relationship, and this is strengthened by the positive reaction to oidiomycin; but such infections are so common that they may be simply coincidental.

The strict periodicity of the phenomenon and the preceding mild disturbance of the upper respiratory tract suggests a much rarer condition, deciduous skin, shedding of the skin. P. E. Bechet (Deciduous Skin, *Arch. Dermat. & Syph.* **37**: 267 [Feb.] 1938) reported a case, the second mentioned in the American literature since 1911. The first was the one reported by Howard Fox (Keratolysis Exfoliativa Congenita, *ibid.* **3**:202 [Feb.] 1921) of a woman whose skin scaled off in large flakes during the whole year. Bechet's patient shed his skin during the whole summer, not at all during the rest of the year. Bechet, on the basis of reddening of the skin previous to exfoliation, considers cases previously reported as shedding of the skin, such as the one reported by Frank and Sanford, reviewed in the textbooks (Ormsby, O. S.: Diseases of the Skin, ed. 5, Philadelphia, Lea & Febiger, 1937, p. 122) as scarlatiniform erythema rather than genuine shedding of the skin. He discusses the differential diagnosis between these. Weidman, in the discussion of Bechet's paper, suggests that genuine shedding may be a "phylogenetic phenomenon" like the shedding of the snake's skin. If the case described in the query is a genuine one of shedding of the skin it is extraordinarily limited.

FAMILIAL AND HEREDITARY CATARACT

To the Editor:—I am confronted with a rather puzzling medicosocial problem. In 1933 I examined the eyes of a woman with congenital cataract. She had three children: a girl, 13, who had cataract; a boy, 10, who had cataract to some extent, and another boy, 15, who did not have cataract. I recently received word from the boy who does not have cataract intimating that he was contemplating marriage. He fears that if he should become a father this taint might be transmitted to his children. He asks my advice as to whether he should undergo the operation of vasectomy to avoid this possible catastrophe. The family history, which I secured from a good friend who is the brother of the woman with cataracts, indicates that she and another brother are the only ones in a family of ten who were so afflicted. It is not even certain that the brother has cataract; it is known only that he goes about with his eyes half closed. He has and has had sufficient vision to enable him to drive a truck. It seems to me that this young man runs little risk of having children with congenital cataract and yet I think there is some risk. I should appreciate an opinion on this problem.

M.D., Missouri.

ANSWER.—From the family history given, which is unfortunately incomplete, it would seem as though cataracts were familial and hereditary in this family. There is no question that cataract can be transmitted in families, as shown in the accompanying table. Green (26th Annual Meeting of the American Ophthalmological Society, 1890, p. 724) reported one family in which twenty-one members were affected. Nettleship (*Royal London Ophth. Hosp. Rep.* **16**, part 3) reported on the occurrence of senile and juvenile cataract in one hundred and sixty-seven families; from three to six generations were affected; in one family thirty members in four generations showed the defect.

Millikin (*Am. J. Ophth.*, March 1903) reported 14 cases of hereditary cataract in three families.

Heredity of Cataract *

Type of Heredity	Number of Families	Total Children	Children Affected	
			Number	Per Cent of Total
Direct heredity, both parents affected	3	15	9	60†
Direct heredity, one parent affected	304	1,012	580	58
Indirect heredity	29	107	45	42†
Collateral heredity	68	312	193	62

* Extract from tabulation summarizing data on heredity of eye diseases collected by Dr. Clarence Loeb (Hereditary Blindness and Its Prevention, Ann. Ophth., January-October 1909).

† Figures too small for sound percentages.

Nettleship and Ogilvie (*Tr. Ophth. Soc. U. K.* **26**:191, 1906) studied the Coppock family and reported 20 cases in four generations. Mann (Developmental Abnormalities of the Eye, Cambridge, University Press, 1937, p. 343) stated that in the Coppock family "inheritance was always direct; i. e., a parent of the affected individual always showed the defect and unaffected cases never transmitted to their offspring (the 'once free always free' rule)."

According to Waardenburg (Modern Trends in Ophthalmology, 1940, p. 101) it is now established that both sex chromosomal (gonosomal) and autosomal genes are involved in ocular disorders, but it is not known to which of the twenty-three autosomes of the mature human gametes these characters belong. He also reports that a case of congenital total cataract perhaps belonged to the sex-linked inheritance which is due to recessive genes localized in the X chromosome.

Judging from the data collected by Mann there is evidently greater than normal risk of this marriage producing children with hereditary cataract. It would certainly be the part of wisdom for this young man to refrain from having children.

WASSERMANN TEST IN HUSBAND AND WIFE

To the Editor:—A woman pregnant for the first time has a negative Wassermann reaction and no clinical evidence of syphilis. Her husband had a Wassermann test done, and the result was 4 plus. This was verified in two other laboratories. A second Wassermann test for the woman gave negative results. She was given 1 Gm. of neoarsphenamine, and a week later the Wassermann reaction was negative. Neoarsphenamine injections are being continued irrespective of the negative Wassermann reaction. Williams, in his Obstetrics, cites a case in which superimposed pregnancies (from different fathers) resulted in one syphilitic child and one free of syphilis, and it was determined that one father had syphilis and the other did not. The husband of the prospective mother has no clinical evidence of syphilis and gives no history of an initial lesion. Is the antisyphilitic treatment of the mother correct? Should it be continued after the child is born even though the Wassermann reaction is negative? Should the child receive any antisyphilitic treatment? Should future pregnancies be inadvisable before the father is Wassermann negative?

T. J. English, M.D., Philadelphia.

Answer.—The information furnished is insufficient. Nothing was stated about the history of the husband's case, nor was it stated whether the cerebrospinal fluid has been tested serologically. Every attempt should be made to find out how long the husband has had syphilis. It is possible that he has old latent syphilis that is no longer transmissible.

Under the circumstances, it was not justifiable to start the wife on the therapy until one had determined the status of the husband. To have done so creates an awkward situation. The usual feeling is that once the patient is started on treatment for syphilis this must be continued and be given in the same manner as if the patient had acquired syphilis.

In this case, however, as far as is known, there is not the least evidence that the patient has had syphilis, and if it were not that she is pregnant the recommendation would be to stop all treatment at once and perform a serologic test once a month. Since she is pregnant, however, it would be advisable to have a consultation with an authority on the subject and to attempt to find out as nearly as possible how long the patient's husband has had syphilis, for if he really has latent syphilis all therapy should be discontinued.

Naturally the child should not receive treatment for syphilis if it does not have the disease.

The answer to the last question will depend much on how long the father has had syphilis and on the result of careful physical examination and laboratory studies.

GASTRIC ULCER AND ANGINA PECTORIS

To the Editor:—Is there any evidence associating angina pectoris with gastric ulcer? Is there any evidence of ulcer being the cause of angina? If the two conditions were present in the same patient would the gastric ulcer aggravate the angina?

E. E. Fowler, M.D., Harrison, Ark.

Answer.—There is no evidence that gastric ulcer and angina pectoris occur together with any unusual frequency. Gastric ulcer is a relatively common disease; the simultaneous presence of angina pectoris and gastric ulcer is so rare as to preclude any special association of these two disorders.

Both the heart and the stomach are supplied by the vagal and the sympathetic systems, and disturbances in one organ may be reflected through nerve pathways to the other. It may be clinically difficult to recognize or demonstrate the presence of gastric disease simulating angina pectoris or to establish the cardiac basis for distress referable to the epigastrium or the upper part of the abdomen. Occasionally, however, disease may be found to exist in both the heart and the stomach, and attempts have been made in such cases to establish an etiologic relationship between the two diseases. Gilbert, Fenn and LeRoy have demonstrated that distention of the dog's stomach produces coronary vasoconstriction. Hinrichsen and Ivy, on the other hand, failed to demonstrate this in earlier work. In similar experiments on man, employing artificial methods of gastric distention, Morrison and Swalm expressed the belief that they could demonstrate the reflex nature of attacks of angina pectoris in patients with gastrointestinal disturbances. Despite these investigations there is no satisfactory proof that a gastric ulcer may be the sole cause of true angina pectoris or that ulcer may play even an indirect part in the anginal pain. Cases have been reported in which treatment of the gastric lesion has resulted apparently in alleviation of the anginal attacks. Eradication of focal infection has been said to accomplish the same result.

References:

Morrison, L. M., and Swalm, W. A.: Role of the Gastrointestinal Tract in Production of Cardiac Symptoms, The Journal, Jan. 20, 1940, p. 217.

Wolff, J. R., and Samuelson, Anna: The Gastrointestinal Factors in Angina Pectoris, *Rev. Gastroenterol.* **2**: 208 (Sept.) 1935.

Hinrichsen, Josephine, and Ivy, A. C.: Effects of Stimulation of Visceral Nerves on Coronary Flow in Dogs, *Arch. Int. Med.* **51**: 932 (June) 1933.

Gilbert, N. C.; Fenn, G. K., and LeRoy, G. V.: The Effect of Distention of Abdominal Viscera, The Journal, Dec. 7, 1940, p. 1962.

HISTAMINE DESENSITIZATION

To the Editor:—Will you kindly let me know the details of the technic for histamine desensitization in cases of general allergy?

M.D., New York.

Answer.—Histamine injections are seldom useful or indicated in cases of general allergy. It may be helpful in occasional cases of urticaria and of some types of physical allergy, particularly intolerance to cold. It is not at all certain that histamine injections result in tolerance to larger doses of histamine. The probable action of histamine treatment is an exhaustion of the reactive mechanism of tissue cells. One of the most common technics of histamine treatment consists in giving small doses of the chemical at frequent intervals, a solution of a histamine salt, such as the phosphate, being used. A dilution of 1:5,000 may be the initial strength used. The dose of 0.1 cc. of this solution can be increased by additional increments of 0.1 cc. each time. Injections are given at first twice daily, later once daily and still later twice weekly. When a dose of about 0.5 to 1 cc. of a 1:2,500 dilution is reached the characteristic histamine reactions occur, consisting usually of flushing of the face, headache and possibly palpitation, and the dose should be slightly decreased. Treatment is to be given, as a rule, for several weeks. Another method of histamine treatment consists in giving 0.5 to 1 mg. of the drug in 500 to 1,000 cc. of an isotonic solution of sodium chloride or of a 5 per cent dextrose solution intravenously by the drip method, about two hours being required to complete the injections. This can be done once daily for several times.

SODIUM BICARBONATE THERAPY AND RENAL STONES

To the Editor:—Is there any relationship between the taking of sodium bicarbonate and other alkalis for gastric disorders and the formation of renal stones?

M.D., New York.

Answer.—In a discussion of the formation of renal stones from the ingestion of alkalis used in the treatment of stomach disorders one must exclude secondary calculi or those due to some preexisting pathologic lesion of the urinary tract.

Primary renal calculi are those formed in an apparently healthy urinary tract. Randall has pointed out that there is a precalculous lesion found in a renal papilla which, when it is bathed in calycine urine, forms the nidus for all primary calculi. He referred to this as a calcified plaque which has formed as a reparative process.

A person who uses alkalis for some gastric disorder or for another reason will have an abnormally greater concentration of these substances in the urine than one who does not. With the presence of a precalculous lesion in a kidney there is a greater chance for the formation of calculi in alkali users.

It has been presumed by some investigators that the constant irritation of the renal calices by the phosphatic deposit leads to the exudation of a little fibrin, which cements the calculus. Other writers have expressed the belief that there is little relationship, if any, between the ingestion of alkalis and the formation of renal calculi.

One with any important amount of experience in the handling of patients with urinary calculi is impressed by the high incidence of urinary stones in patients under medical management for gastric ulcer. Regardless of statistics or articles written to disprove this statement, almost all observers in the field consider the foregoing statement to be an absolute fact.

References:

Randall, Alexander: The Etiology of Primary Renal Calculus, *Internat. Abstr. Surg.* **71**: 209, 1940; in *Surg., Gynec. & Obst.*, September 1940.

Moore, Thomas: Renal Calculi Following Alkali Therapy, *Lancet* **2**: 1118 (Nov. 23) 1939.

Kretschmer, H. L., and Brown, R. C.: Do Alkalis Used in the Treatment of Peptic Ulcer Cause Kidney Stones? The Journal, Oct. 14, 1939, p. 1471.